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Individuality and Responsibility Have a Value in Establishing the Standing of the Pharmacist in Professional Activities. Pharmacy Is Known by Its Service and the Pharmacist by His Personality and Devotion to Pharmaceutical Duties.

Vol. XXII, No. 11 NOVEMBER, 1933

JOURNAL
OF THE
AMERICAN PHARMACEUTICAL ASSOCIATION

TRADE MARK

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Published Monthly by the American Pharmaceutical Association: Office of publication, 20th & Northampton Sts., Easton, Pa. Editorial Office, 10 West Chase St., Baltimore, Md. Annual Subscription, $4.00; Canada, $4.35; Other Foreign, $4.50; Single Numbers, 35 cents; Canada, 40 cents; Other Foreign, 50 cents.

THE 82nd ANNUAL MEETING OF THE AMERICAN PHARMACEUTICAL ASSOCIATION WILL BE HELD IN WASHINGTON, D. C.

The 1934 Meetings of the American Association of Colleges of Pharmacy, the National Association of Boards of Pharmacy, Conference of Pharmaceutical Association Secretaries, of the Pharmaceutical Law Enforcement Officials and the Plant Science Seminar will also be held in Washington.

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E. F. KELLY, Secretary,
10 West Chase Street,
Baltimore, Md.

UNIV OF MICH

A dinner and "get-together" meeting of New York Physicians and Pharmacists, held at Hotel Pennsylvania, at which time matters of professional interest and other subjects of mutual and public health service were discussed.

PATRICK H. COSTELLO.

JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

VOL. XXII NOVEMBER, 1933 No. 11

THE CHAIRMAN OF THE HOUSE OF DELEGATES, AMERICAN PHARMACEUTICAL ASSOCIATION, 1933–1934.

Patrick H. Costello was born in Sauk Center, Minnesota, in 1896. He completed a 2-year college pre-medical course at the University of North Dakota and, in 1917, graduated in pharmacy in North Dakota Agricultural College, School of Pharmacy, at Fargo.

During the World War Mr. Costello served in the Medical Department of the U. S. Army. In 1919, he purchased the retail drug store in Cooperstown, still owned by him. He became a member of the AMERICAN PHARMACEUTICAL ASSOCIATION in 1923; in 1924, he was elected president of North Dakota Pharmaceutical Association and, in 1927, was named treasurer of this organization and is still serving in that capacity.

In 1927, Mr. Costello was appointed to fill an unexpired term on the North Dakota Board of Pharmacy and two years later he was re-appointed member for the 5-year term; since 1927, he has served as secretary of the board. The State Association passed resolutions expressing its appreciation of the good work being done by the board and its efficient secretary.

Chairman P. H. Costello, of the House of Delegates, held the vice-chairmanship of the House during the past year.

The subject of this brief sketch is a member of Beta Theta Pi and of the Masonic bodies.

Mr. and Mrs. Costello have one son, aged 12 years.

A. Ph. A. Resolution No. 4. Federal Food and Drug Law.

Resolved, that the AMERICAN PHARMACEUTICAL ASSOCIATION record its approval of the proposed changes in the Federal Food and Drug Law in so far as they provide for more effective protection of the public health, and be it further

Resolved, that in the interest of a sound public policy the delegation of arbitrary discretionary powers in connection with the enforcement of Food and Drug legislation be disapproved.

EDITORIAL

E. G. EBERLE, EDITOR 10 West Chase Street, BALTIMORE, MD.

INDIVIDUALITY AND RESPONSIBILITY.

WE ARE hopeful that the National Recovery Act will be productive of results that will establish peace and plenty and a better understanding of responsibilities in connection with the obligations of citizenship.

It remains to be seen just how the public will fare under a union of state with what is termed by some "an integrated and highly mechanized modern business"—we must be stimulated by hope, but realize the many difficult problems that are to be solved, and "do our part."—Return prosperity depends on the average citizen.

In closing an editorial of the August JOURNAL it was said that "codes are essential but also a determination to establish better conditions and uphold them and, to that end, the public must take a greater interest in forcing compliance with honest practices, because of its responsibility for disturbing conditions, due to indifference, greed and selfishness."

In Pharmacy, individuality is an outstanding quality—influential for great good, if it is marked by superiority and not by an inferiority complex. The public expects and receives from pharmacy a service that represents more than the average layman recognizes, unless knowledge comes to him through experience, or when he acquires knowledge through education, as at the Century of Progress, where much information relative to pharmacy was revealed to the visitors as something new—it was most interesting to watch the expression of inquiry on many faces.

Individuality and responsibility have a value in establishing the standing of the pharmacist in professional activities. Pharmacy is known by its service and the pharmacist by his personality and devotion to pharmaceutical duties. These qualifications and training of the pharmacist represent the highest type of good publicity, of a kind that requires neither bugle nor colors—a message that communicates and strengthens confidence. A few months ago a pharmacist, in a city of less than 30,000, after considerably more than a half century of services, concluded his pharmaceutical practice. His individuality as pharmacist developed and was maintained throughout the years of his active life, without being disturbed by an adjacent drug store of another type, but which he did not consider competitive.

Other pharmacists come to mind, whose perfect packages or products marked the respective pharmacies. These men cultivated individuality and—in their own way, modestly but persistently—they capitalized it.

It may be necessary to arrange and adapt the conduct of business, but pharmacy has a place of service, for thereby life and health are protected. Individuality marks the pharmacist and responsibility characterizes him. The many divisions of the sciences contributing to pharmacy have given pharmacists opportunities that enable them to render distinguished services in all of them—they have shown this by their works.

PLANS FOR INCREASING THE MEMBERSHIP IN THE A. PH. A.

THE AMERICAN PHARMACEUTICAL ASSOCIATION, throughout its long and eventful history, has been devoted to the more intrinsic phases of pharmaceutical work. It has been the dominant influence in the professional and educational field. Its force and prestige have been brought to bear upon legislation; upon the standardization of drugs and medicines; and upon the various efforts which have advanced pharmacy in the field of public health. Every worth-while suggestion for the betterment of pharmacy has received the earnest support of the ASSOCIATION. From time to time the ASSOCIATION has courageously stood for basic principles, and has never faltered in its adherence to sound professional and economic ideals. Just as courageously, the ASSOCIATION has opposed many movements, popular enough for the moment, but which were certain to be harmful in the course of time. In other words, the ASSOCIATION has stood as a beacon light, bearing the brunt of passing storms, yet always pointing the direction in which pharmacy might safely move.

It is from this proud background that I have endeavored to bring a larger number of pharmacists into the ASSOCIATION. I feel that all members of pharmaceutical faculties, all members of boards of pharmacy, all state association officers should, because of their peculiar duties and obligations to pharmacy, be active members in the AMERICAN PHARMACEUTICAL ASSOCIATION. Invitations have been extended to them, facts and information have been supplied, and I am confident that many will become members, and take an active part in the affairs of the ASSOCIATION.

Also plans are now in progress for interesting the great retail group. I have asked the members of the A. PH. A. state membership committees to furnish me with the names of those pharmacists who might be interested in the fundamental work carried on by the ASSOCIATION. Invitations will be sent to all whose names are submitted. Special care will be given to presenting the work, the history, the plans and ideals of the ASSOCIATION and their relationship to the every-day work of pharmacists. I believe that the great rank and file of pharmacists will be better fitted for their responsible professional duties by membership in the ASSOCIATION. The ASSOCIATION, too, will be placed in a better position, and thus more able to meet the demands made upon it, by a stronger and larger membership.

I have also arranged to write a special monthly letter to all state association officers dealing with some phase of current events of interest to pharmacists. I shall do this first as my contribution to a better understanding of things going on around us, and second to bring the A. PH. A. more closely into the thoughts and plans of the officers of state associations.

My hope is that these efforts may be mutually helpful to the ASSOCIATION and to the great professional group that it serves. I earnestly request the cooperation of the membership throughout the country, so that these plans and efforts may be reasonably successful.—ROBERT L. SWAIN, *President.*

SCIENTIFIC SECTION

BOARD OF REVIEW OF PAPERS.—*Chairman*, L. W. Rowe, George D. Beal, F. F. Berg, C. O. Lee, E. V. Lynn, John C. Krantz, Jr., Heber W. Youngken.

QUANTITATIVE APPLICATIONS OF THE MODIFIED TÜRK TEST.*[1]

BY JAMES C. MUNCH, HARRY J. PRATT AND AMELIA M. DE PONCE.

A number of local anesthetics, analgesics, hypnotics and sedatives have been tested for their relative potencies on intact frogs or on isolated tissues (1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13). Qualitative tests have been made by painting the skin, by direct immersion of the entire frog, or of one or both feet. Tests upon the sensitivity of the frog's foot have been conducted under a procedure to which the name "Türk" Test is applied. *Rana pipiens* (frogs) weighing between 15 and 40 Gm. were stored in running water at temperature of 15° C. for several days before use. Each frog was then removed from the storage bath and the brain destroyed by pithing. In a few instances Van Leeuwen's suggestion to decerebrate or decapitate was followed, but without improving the delicacy or accuracy of the method (6). After an interval of from five to ten minutes, to allow shock to pass off, the sensitivity of each frog was determined by immersing both feet in an $N/10$ solution of hydrochloric acid. Suitable frogs jerked out both feet from the acid within five seconds or less; frogs not showing this degree of sensitivity were discarded. The feet were then washed free from acid with water. One foot was immersed in the test solution, the other being used as a control. At the expiration of the desired time interval, measured by watch or interval timer, any adhering solution was wiped from both feet with a towel and both feet at once placed in $N/10$ hydrochloric solution. Special pains were taken to avoid injuring the skin during the wiping process. A positive result was recorded when the frog jerked out the untreated foot within five seconds or less, while the treated foot remained in the acid solution for five to thirty seconds, or even longer. In a number of experiments we found that soaking the treated foot in water for several minutes failed to cause a return of the original susceptibility and therefore no attempts were made to conduct more than one test on each foot. The first result obtained on a frog was felt to be more nearly quantitative; after a rest period, a qualitative test was conducted, immersing the foot which originally had served as a control and using the foot originally treated as the control for the second test.

For periods of immersion of 120 seconds or less, tests were made on different frogs at five-second intervals; for periods between two minutes and five minutes, at ten-second intervals; for periods longer than five minutes, thirty-second intervals. Results obtained upon five to ten frogs at each concentration are averaged. Plotting the concentrations against the average time in seconds the observation values suggest a curve with a trend toward an exponential, logarithmic or hyperbolic curve. When the logarithms of concentrations are plotted against the average time in seconds, results approach a straight line for periods up to 120 seconds. A different type of curve appears to develop at about two minutes' immersion.

* Scientific Section, A. PH. A., Madison meeting, 1933.

[1] Department of Pharmacology, Sharp and Dohme, Philadelphia, Pennsylvania.

Statistical studies of the curves obtained in less than 120 seconds suggest that an interval of immersion of 60 seconds is the proper time for induction of analgesia (at least on a comparative basis).

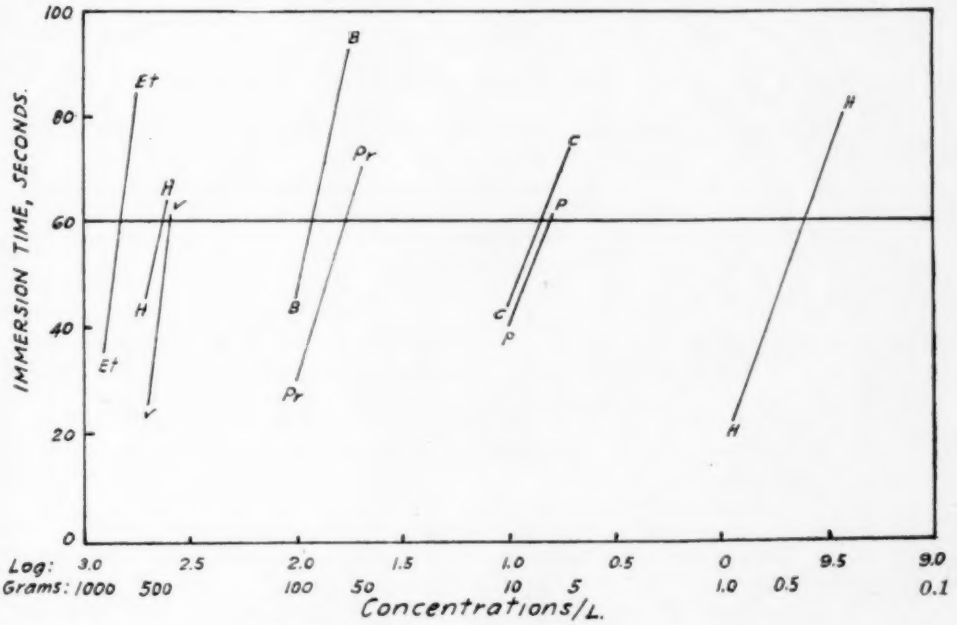

Fig. 1.—Induction of anesthesia—Türk test.

The detailed results obtained in testing a number of products are given in Fig. 1 and Table I. The estimated isoanalgesic concentrations for 60-second immersion periods have been interpolated from the curves when feasible.

TABLE I.—ISOANALGESIC CONCENTRATIONS BY TÜRK TEST.

(60-Second Immersion.)

Product.	Concentration (Gm. per Liter).	Product.	Concentration (Gm. per Liter).
Hexylresorcinol	0.45	Urethane	25.0
Morphine Sulphate	5.0	Procaine	62.0
Phenol	7.2	Borocaine	85.0
Cocaine	7.5	Chloral Hydrate	330.0
Beta Eucaine	10.0	Valerian	400.0
Chloretone	25.0	Hops	450.0
Nembutal	25.0	Ethyl Alcohol	680.0

The early attempts to use this method are not capable of giving quantitative results, because of the effects of a large number of variables which appear to influence the end result. However, as one becomes accustomed to this type of testing, it is possible to obtain better agreement. In some animals it is almost impossible to get quantitative results, although the qualitative findings are in harmony with previous tests upon other frogs. Using a sufficient number of frogs, it is believed that differences of plus or minus ten per cent may be detected by this method.

CONCLUSION.

Using a period of 60 seconds immersion, and using a sufficient number of frogs, it is possible to detect variations of plus or minus ten per cent in the concentration of local anesthetics, analgesics, hypnotics and sedatives.

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MEDICINAL COD LIVER OIL—OBSERVATIONS ON COLOR AND VISCOSITY.*

BY GEORGE E. ÉWE.

COLOR.

Medicinal cod liver oil appears in the market showing various shades of yellowish or brownish yellow color. This color is to a large extent due to its content of biliary constituents of the liver from which the oil is obtained, although, as will be shown further on the source of the oil, the iron content, extent of oxidation, manufacturing manipulations, degree of exposure to sunlight, age, etc., materially affect the color of the oil. The presence of biliary matters can be demonstrated by applying Pettenkofer's test to a water-extract of cod liver oil and also by applying Gmelin's test to the residue obtained by evaporating a fresh alcohol-extract of the oil.

When the oil is obtained by the "steaming" process a pale colored oil is procurable whereas when the "rotting" process is employed a much darker product results. While there is no data available on the relative content of biliary con-

* Scientific Section, A. PH. A., Madison meeting, 1933.

stituents in oils made by the 2 processes the possibility is presented that the "rotting" process imparts a larger proportion of these constituents to the oil for the following reasons: the "steaming" process, since it employs heat, coagulates the proteids of the liver thus locking-up the biliary constituents and rapidly segregating them from the oil whereas in the "rotting" process the liberation of the oil is dependent upon the slow disintegration (autolysis) of the liver and consequently the oil is brought into intimate and prolonged contact with the liberated biliary constituents. This should permit the oil to dissolve much more of these coloring substances than is possible with the rapid "steaming" process.

A possible source of color which has not been thoroughly recognized as yet is the iron content of the livers. Iron is a regular constituent of cod liver oil. Four samples examined by Briod, Van Winkle, Jurist and Christiansen (1) were found to contain 0.47, 0.13, 0.39 and 0.34 parts of iron per million, respectively. These proportions seem negligible, all being less than 1 part per million. However, minute proportions of iron can materially affect the color of cod liver oil as shown by the following experiments: the color of pale yellow cod liver oil to which $2^1/_2$ parts per million of iron in the form of ferric oleate was added was distinctly darkened in color by this addition, while the addition of 5 parts per million made the oil several shades darker in color.

It does not seem inconceivable that traces of iron are carried into the oil from the iron-rich liver during the separation of the oil from the liver, especially in view of the slight acidity shown by even the best quality of cod liver oil.

While it is possible that the iron content of the livers is a source of the iron content of cod liver oil, the influence of the metallic equipment used in producing, refining, storing and shipping the oil must not be overlooked. Briod and Christiansen (2) found that darkening will be occasioned if the oil is allowed to remain in contact with iron, especially if a trace of moisture is present. Under these conditions the traces of free fatty acids common to even a good grade of oil may eventually attack the iron or iron rust of the container to produce ferrous fatty acid salts which are soluble in the oil and which later oxidize to the much darker ferric condition and so discolor the oil. Thus, the state of oxidation of the iron content is also a factor influencing the color of cod liver oil.

To ascertain something of the effects of light and oxidation and also of the possible effect of iron upon the color of cod liver oil under the influences of light and oxidation samples of plain oil, the same oil with the addition of $2^1/_2$ parts per million of iron in the form of ferric oleate and the same oil with 5 parts per million of added iron were filed away in flint glass, corked bottles in diffused sunlight; a corresponding series being filed away in the dark. After one month all samples kept in the light were lighter than those kept in the dark whether corked or uncorked. Furthermore, there was no detectable difference in color between the corresponding corked and uncorked samples so that in the stated period of time light had exerted a notable bleaching effect but the bleaching action of oxidation was not yet evident. After 4 months all samples kept in the light were still lighter than the corresponding ones kept in the dark and, in addition, the unstoppered samples were all lighter than the corresponding stoppered ones, thus illustrating the bleaching action of oxidation. The samples exposed to both light and air were bleached to a greater extent than the corresponding ones exposed to either air

alone or light alone, so that the bleaching effects of light and air are additive. Whether the light treatment or the oxidation treatment was the more potent bleaching factor could not be satisfactorily determined in this series of experiments for although the colors of corresponding samples exposed to light alone or to air alone were approximately the same in depth, they were different in quality, the colors of the samples exposed to light alone being of a brownish cast whereas those exposed to air alone were of a yellowish cast. However, the light treatment was more rapid, since it showed its effects after 1 month, whereas the effect of oxidation was not evident at this time. The samples exposed to both light and air all showed a whitish haze after 4 months, which suggests the formation of water or other insoluble substance by the combined effect of light and air. In all cases, the colors of the samples containing $2^1/_2$ parts of added iron per million were still distinctly (but only slightly) darker, after 4 months, than the corresponding samples of plain oil, whereas the samples containing 5 parts of added iron per million were several times darker than the samples with $2^1/_2$ parts of added iron per million which presents the possibility that the color of cod liver oil may be darkened by iron to a greater degree than would be predictable by direct mathematical proportion.

The possibility that the color of cod liver oil may be contributed to by yellow carotinoid pigments derived from the plankton upon which cod fish feed abundantly, has evidently not been thoroughly investigated. It is known, however, that plankton feed upon diatoms and other forms of life which have been shown to contain carotinoid pigments.

The depth of color of cod liver oil will be found to vary when the oil is successively obtained from different sources, due primarily to the various manufacturing and storage methods employed by different producers. Variations in color of successive batches of the oil from a single source of production will also be occasioned if variations in the production method used in the particular plant are permitted. When uniform methods of production are used successive batches of medicinal oil of high potency and very pale color scarcely varying in depth of color can be consistently produced.

When cod liver oil is of initially dirty yellow or brown color this can be usually ascribed to unsatisfactory preparation and such oils are considered inelegant, if not actually inefficient, preparations.

When cod liver oil is exposed to air and sunlight (direct or diffused) it undergoes an initial bleaching, but if excessively exposed, ultimately becomes much darker than if protected against oxidation and sunlight. This bleaching process greatly impairs the taste and odor, and possibly the vitamin content, of the oil and consequently is not permissible in the production of the best grade of medicinal oil.

The U. S. Dispensatory (21st Edition) states: "In the best equipped establishments (for making high quality medicinal cod liver oil)...the oil...is... bleached by treatment with fuller's earth or by exposure to sunlight." While this may be the practice in some establishments it is certain that the use of fuller's earth or exposure to sunlight is entirely unnecessary for the production of pale colored medicinal cod liver oil of extreme palatability, unoffensive odor and high vitamin A and D potency. Oils produced without these treatments are to be pre-

ferred since the effect of these treatments upon the taste, odor and possibly the vitamin content, is not favorable.

High quality, pale colored medicinal oil has been observed to darken slightly when kept in tightly stoppered, incompletely filled, flint-glass bottles for some months in diffused sunlight, and even when kept in the dark. In the latter case, even amber-glass bottles did not entirely prevent a change in color. However, in all these cases, the color, while unmistakably darker, was no darker than that of many oils ordinarily marketed as medicinal oils and the oils were still entirely fit for use.

J. C. Drummond (3) states that the nearly colorless cod liver oils derived from spawning fish are considerably lower in vitamin content than the pale yellow oils obtained from feeding fish. Drummond goes on to state that it is not at all undesirable that medicinal cod liver oil should possess a pale lemon color since such oils are generally superior to so-called "white" oils, and that only dirty yellow or brown oils, are undesirable, since these colors usually indicate unsatisfactory preparation.

There is no direct relation between the depth of color of a medicinal cod liver oil and its vitamin content and biological assay, rather than color, must be depended upon as the criterion of vitamin potency. Hare ("Practical Therapeutics," 1930) states "The oil is pale or dark according to its freedom from foreign materials. Although the paler oils are generally prescribed, there can be little doubt that the darker ones are more medicinally active." However, since pale oil has been repeatedly observed to darken with age while the vitamin content has certainly not coincidently increased, Hare's statement cannot be concurred in. It is also well known that oil prepared by the "rotting" process while highly colored is not higher on the average in vitamin content than the light colored oils obtained by the "steaming" process.

Pale yellow color as a result of careful preparation, storage and preservation is a desirable feature of medicinal oil since the pale yellow oil is generally considered the more elegant product. However, pleasant taste and odor and high vitamin potency must also be possessed by such a product and products made pale by chemical, adsorbent or light treatments at the expense of taste, odor or potency must be guarded against. An oil possessing some color but of satisfactory taste, odor and vitamin potency is more to be desired than a pale oil of poor taste and odor and low vitamin potency, or a "white" oil of low potency.

VISCOSITY.

The viscosity (or consistency) of cod liver oil calls for important consideration because a more viscous oil would be less readily swallowed.

At least one producer of medicinal grades of cod liver oil assures prospective users that his product is uniform in consistency. However, in this investigation no material difference was found in the viscosities of various market brands of medicinal cod liver oil when compared at 25° C.

To the eye, different brands of cod liver oil of the same grade will often appear to vary in viscosity when compared, but a more reliable measure of viscosity must be used to obtain a true comparison. The U. S. P. IX method for determining

the viscosity of Liquid Petrolatum affords a simple and sufficiently accurate way of comparing the viscosities of various cod liver oils of the same grade.

Various brands of medicinal cod liver oils on the market showed the following viscosities by the U. S. P. IX method for Liquid Petrolatum: 5.74, 5.77, 5.39, 5.45, 5.45, 5.61, 5.80, 5.64 and 5.80, respectively. Some of these oils were flavored but it is not likely that the viscosities of the original unflavored oils were material different since the addition of 0.5% of essential oil to cod liver oil of known viscosity had no appreciable effect upon the viscosity. While the above data shows some variation in the viscosity of different market brands the differences are not material since several persons were unable to distinguish any difference in viscosity upon swallowing comparative doses of the above oils showing maximum (5.80) and minimum (5.32) viscosities.

Successive batches of medicinal cod liver oil from a single source of manufacture appear to vary in viscosity among themselves to an even lesser degree than do market brands from various sources. Ten successive batches from a single source of manufacture showed viscosities of 5.55, 5.58, 5.64, 5.67, 5.58, 5.80, 5.64, 5.70, 5.80 and 5.61, respectively.

Oxidation is a well-known factor operating to increase the viscosity of cod liver oil. It is a familiar fact that when cod liver oil is exposed to the air it becomes progressively more viscous and finally forms a tacky, gelatinous mass. Three lots of cod liver oil of known viscosity by the U. S. P. IX viscosity test for Liquid Petrolatum, showed definitely increased viscosities, when tested 3 months later, after having been stored in screw-capped bottles, the bottles being uncapped occasionally to simulate the treatment they would likely undergo as bulk stock containers in the retail pharmacy (see "Treatment No. 1" in table). When these oils were stored for 3 months in wide-mouthed bottles, the mouth of each bottle being covered with muslin, to illustrate the effect of exaggerated exposure to the air, the resultant respective viscosities of the 3 oils were much more greatly increased (see "Treatment No. 2" in table). In the latter series, surface oxidation was plainly visible (surface film and shred formation) and the taste of the oils seriously impaired. The U. S. P. reminder to preserve cod liver oil in well-closed containers is pertinent and displacement of the air in the container by an inert gas is of additional precautionary value.

TABLE SHOWING EFFECT OF SPONTANEOUS OXIDATION UPON THE VISCOSITY OF COD LIVER OIL.

Oil No.	Initial Viscosity.	Viscosity after Treatment No. 1.	Viscosity after Treatment No. 2.
1	5.64	5.90	7.03
2	5.61	5.78	7.12
3	5.67	5.74	6.23

As pointed out by the writer in JOUR. A. PH. A., 22 (1933), 109–112, stearin content ordinarily found in market brands of medicinal cod liver oil has no appreciable effect upon the viscosity of the oils at room temperature, although at much lower temperatures and especially around congealing temperatures the proportion of stearin very greatly affects the viscosity, the viscosity being increased by increase in the stearin content.

The viscosity of cod liver oil is very materially influenced by the temperature, high temperatures reducing the viscosity and low temperatures greatly increasing it.

As also pointed out by the writer in the above-mentioned article in JOUR. A. PH. A., 22 (1933), 109–112, medicinal cod liver oil is often thickened or congealed by precipitation of stearin at temperatures of about minus 8° C. or lower and even at refrigerator temperature (10° C.) its viscosity is greatly increased (from 5.6 to 8.1, on the average). "As a consequence, when it is desired to minimize the influence of viscosity upon the taking of cod liver oil it is well to direct that the dose be taken from a small bottle of the oil kept at room temperature, the main supply being preserved in the refrigerator or other cool place."

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RESEARCH LABORATORIES,
TAILBY-NASON COMPANY, BOSTON, MASS.

COD LIVER OIL—STABILITY OF VITAMIN A CONTENT UNDER CONDITIONS OF COMMERCIAL DISTRIBUTION.*

BY GEORGE E. ÉWE.

The value of cod liver oil resides in its vitamin content. Consequently, consideration of the degree of stability of the vitamin content of cod liver oil is of importance. The following data concern the stability of the vitamin A content of cod liver oil, consideration of the vitamin D content being reserved for a possible future communication. Poulsson (1) found that a sample of cod liver oil, 23 years old, promoted growth in rats kept on a deficient diet when fed with 3 to 5 mg. daily of the oil. Evers (2) reported that cod liver oil, when properly stored, retains a considerable proportion of its vitamin A activity for long periods (up to 26 years), and that exposure to light or oxidation lowers its vitamin A activity, the chief cause of loss of activity being the action of light. Sunlight, especially, was found by Evers to destroy vitamin A rapidly and in this respect it appeared to be more active than ultraviolet radiation from a mercury vapor lamp. He suggested that the oil be preserved in amber bottles with as little exposure to the air as possible. Holmes and Pigott (3) found that exposure of cod liver oil in flint-glass bottles to direct sunlight transmitted through ordinary glass windows as much as possible during 16–24 months resulted in marked loss of potency. Exposure to diffused sunlight during 14–26 months showed no detectable detrimental effect except in an excessively warm location. The experiments were controlled by parallel samples enclosed in cartons to shut off the light. Holmes and Pigott concluded that light-proof containers, such as amber bottles or flint bottles wrapped in paper or cartons should be used in storing and distributing cod liver oil.

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* Scientific Section, A. PH. A., Madison meeting, 1933.

As a contribution to the subject of the stability of the vitamin A content of cod liver oil a study was made regarding the possible effects of the varying conditions and vicissitudes to which cod liver oil is subjected under conditions of commercial distribution. To do this, bottles of cod liver oil which had been out in the trade for various periods of time and which were returned for credit (almost invariably because of labels soiled through handling) were taken at random and the oil re-assayed for vitamin A and the assay compared with the original assay of the oil. The oils involved were of medicinal grade from the Lofoten area of Norway and conformed with the characteristics and tests outlined in a previous article by the writer (JOUR. A. PH. A., 21 (1932), 1145). The oils were contained in either 4-oz. or 12-oz. greenish flint, screw-capped glass bottles without wrapping or carton around the individual bottle, the filled bottles being packed in cartons of 6 bottles each, in the case of the 12-oz. size bottles, or in cartons of 12 bottles each in the case of the 4-oz. size bottles. The oils were marketed through the usual wholesaler-retailer route. Presumably, the retailer orders from a twelfth of a dozen up, as required, and the wholesaler removes the bottles of oil from the cartons, as necessary to supply the ordered quantity and then forwards the bottles of oil to the retailer.

Practically nothing is known of the varying conditions and vicissitudes to which the bottled oils had been subjected out in the trade. However, none of the bottles had been opened since they were sealed at the factory. The bottles of oil had been subjected to all of the actual, normal conditions of trade and not to any artificial set of conditions in any particular. Consequently, the results should fairly indicate the stability of the vitamin A content of bottled cod liver oil under the ordinary conditions of the handling undergone by these oils during commercial distribution.

TABLE SHOWING STABILITY OF VITAMIN A CONTENT OF COD LIVER OIL UNDER CONDITIONS OF COMMERCIAL DISTRIBUTION.

Batch.	Vitamin A Content when Originally Bottled.	Vitamin A Content after Exposure to Trade Conditions.	Length of Time Exposed to Trade Conditions.
18591	Not less than 1000 units	Not less than 1000 units	3 years, 11 months
18764	Close to 1000 units	Close to 800 units	4 years
19132	Not less than 1000 units	Not less than 1000 units	3 years, 11 months
19200	Between 800 and 1000 units	Between 800 and 1000 units	3 years, 8 months
19352	Not less than 1000 units	Not less than 1000 units	3 years, 9 months
19400	Not less than 1000 units	Not less than 1000 units	3 years, 9 months
19800	Between 800 and 1000 units	Between 800 and 1000 units	3 years, 4 months
20125A	Not less than 1000 units	Not less than 1000 units	2 years, 8 months

The above results indicate that it is very unlikely that bottled medicinal cod liver oil will deteriorate in respect to its vitamin A content before reaching the hands of the consumer. Nevertheless, good pharmaceutical practice dictates that protection from the direct rays of the sun and from excessive exposure to the air or storage in warm locations should not be denied this product.

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RESEARCH LABORATORIES, TAILBY-NASON COMPANY, BOSTON, MASS.

TINCTURE OF DIGITALIS.*

BY L. W. ROWE AND WILBUR L. SCOVILLE.

This paper is a continuation of the work reported to this Section two years ago.

In November 1931, a second series of tinctures was prepared from a defatted drug assaying 200 per cent of standard.

For Series A, 125 Gm. of the drug was extracted with 77% alcohol and 1150 cc. of tincture was obtained, this being 92% of the full yield. This percolate was then divided into five portions of 230 cc. each and numbered successively.

No. 1 was diluted to 250 cc. with 77% alcohol.

No. 2 was adjusted to a p_H of 2.93 by the addition of 1.5 cc. of hydrochloric acid, then made up to a volume of 250 cc. by the addition of 2.5 cc. of water and 16 cc. of alcohol.

No. 3, which had an initial p_H of 5.56, was adjusted to a p_H of 6.76 by the addition of sodium hydroxide solution, then made up to a volume of 250 cc. with 77% alcohol.

To No. 4 was added 2.5 cc. of glacial acetic acid, then 15 Gm. of anhydrous sodium acetate was dissolved in the liquid and the final volume was adjusted to 250 cc. by addition of alcohol.

No. 5 was treated with 50 Gm. of anhydrous sodium sulphate, the mixture being agitated frequently during one week, then filtered and the filter washed with 95% alcohol to obtain a yield of 250 cc. This assayed 78.6% of alcohol and showed a p_H of 5.41.

Series B was made from another 125 Gm. of the same drug but it was first sterilized in the following manner. The drug was mixed with 120 cc. of 95% alcohol, allowed to stand over night, then heated on a steam-bath under a reflux condenser for 20 minutes, cooled, 30 cc. of water added and well mixed, then transferred to a percolator and extracted with 77% alcohol to obtain 1150 cc. of percolate.

This was divided into five equal portions and the series made to correspond to Series A; No. 1 being diluted to 250 cc. with menstruum; No. 2 adjusted to a p_H of 3.01 with hydrochloric acid; No. 3 adjusted to a p_H of 6.70 with sodium hydroxide; No. 4 saturated with anhydrous sodium acetate (15 Gm.) and 2.5 cc. glacial acetic acid added to maintain an acid reaction; and No. 5 partially dehydrated with 50 Gm. of anhydrous sodium sulphate. The alcohol in No. 5 when finished tested 79.9%. Each was adjusted to a final volume of 250 cc.

Series C was made with 87% alcohol, without sterilization, the 1150 cc. of percolate being divided into five portions of 230 cc. each. No. 1 was diluted to 250 cc. by addition of 87% alcohol, No. 2 was adjusted to a p_H of 2.80 with hydrochloric acid, No. 3 to p_H 6.80 with sodium hydroxide, No. 4 was saturated with (10 Gm. of) anhydrous sodium acetate and kept acid by means of 2 cc. of glacial acetic acid, and No. 5 was treated with 30 Gm. of anhydrous sodium sulphate. This showed an alcohol content of 87.2% when finished.

All samples were adjusted to a final volume of 250 cc., were assayed soon after completion, then all were stored in amber bottles in a laboratory room and in diffused light.

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The second assay was made 11 months after the first.

The following table shows the stability of the samples during an eleven months' period.

Series A.	p_H.	First Assay.	Second Assay.	Series B.	p_H.	First Assay.	Second Assay.	Series C.	p_H.	First Assay.	Second Assay.
No. 1	5.38	110%	85%	No. 1	5.37	110%	90%	No. 1	5.16	100%	90%
No. 2	2.93	110	120	No. 2	3.01	110	110	No. 2	2.80	110	65
No. 3	6.76	100	90	No. 3	6.70	110	110	No. 3	6.80	150	85
No. 4	6.10	110	120	No. 4	6.07	100	120	No. 4	6.25	150	90
No. 5	5.41	110	150	No. 5	..	110	70	No. 5	..	100	80

Two lots of tincture made with 77% alcohol and stabilized with anhydrous sodium acetate and acetic acid in 1930 were again assayed with the following results:

Tinct. G. 125% on Dec. 1, 1930, 125% on May 28, 1931, 120% in November 1932.
Tinct. F. 125% on Dec. 1, 1930, 125% on May 28, 1931, 120% in November 1932.

One of us (L. W. R.) has also tested the toxicity of anhydrous sodium acetate on frogs and white mice, and reports as follows:

> "The solution used contained 6% of anhydrous sodium acetate in 70% alcohol and also 1% of acetic acid. By the one-hour frog method 0.015 cc. per Gm. was necessary to prostrate the frog, while 0.025 cc. per Gm. did not stop the heart in systole. The minimum systolic dose for Tr. Digitalis, U. S. P. X is 0.006 cc. per Gm. so that more than four times as much of the control solution failed to show any digitalis action. The minimum lethal dose for frogs is about 0.050 cc. per Gm. and then the heart stops in diastole. The solution was more toxic to white mice as a dose of 0.010 cc. per Gm. was just fatal.
>
> "It could not be denied that this control solution possessed some toxicity for these small laboratory animals, the white mouse and the frog, but the toxic action was not at all like that of the digitalis glucosides, so it really should not affect the assay appreciably."

These results may be summarized as follows: The plain, unadjusted tincture shows a 15% deterioration in eleven months; from sterilized drug a 10% deterioration, and when made with 87% alcohol 10% deterioration in the same time.

When adjusted to a p_H of about 3.0 with hydrochloric acid, no deterioration is shown in the two tinctures made with 77% alcohol, but 40% deterioration appears in that made with 87% alcohol.

When adjusted to near neutrality by addition of sodium hydroxide a deterioration of 10% is shown in the first tincture, no deterioration in that made from sterilized drug and 45% deterioration in that made with 87% alcohol. In the latter case the tincture was on the alkaline side for a few moments during the adjustment proceedings.

In the tinctures saturated with anhydrous sodium acetate, the first shows no deterioration, the sterilized drug shows no deterioration and that made with 87% alcohol shows 40% deterioration. The reports on the first two each show a variation of 10 points—which suggests an experimental error. The last tincture is outside the pale of experimental error.

The treatment with anhydrous sodium sulphate for the purpose of dehydrating shows peculiar results. The first tincture indicates a gain of 36%, the second a loss of 37% and the third a loss of 20%. Furthermore the dried sodium sulphate proved to be a weak dehydrating agent in the tinctures as shown by the fact that the finished tinctures in each case contained about the same percentage of alcohol as the menstruum used. On the basis of the above results this method does not look promising.

Reviewing the results of three years' experiments the anhydrous sodium acetate treatment is the only one which has shown real and fairly consistent stability. In the (only) two samples made in 1930 the tinctures have remained practically stable for two years.

Adjustment of the p_H shows no advantage and other laboratories have concurred in that view. The use of a stronger alcoholic menstruum involves greater difficulty in extraction, and thus far does not indicate any greater stability in the tincture.

Sterilizing the drug before extracting has indicated some advantage in certain trials, none in others. The advantages are not great enough and the results are not consistent enough to warrant a positive opinion on this method.

The sodium acetate treatment is the only method found which has shown positive and fairly consistent stabilizing results.

It must be borne in mind that the only problem is to secure a stable tincture. We have had no difficulty for thirty years in making tinctures which represent the drug satisfactorily, when first made, but these tinctures are instable.

The amount of anhydrous sodium acetate needed is 60 Gm. in 1000 cc. This is equivalent to a little more than 99 Gm. of the U. S. P. sodium acetate containing three molecules of water.

That will equal about 1.5 grains of the official salt in 15 minims of Tincture of Digitalis. The average dose of sodium acetate is given as 25 grains. It has a diuretic action, this being in harmony with digitalis action. It is not a very active or toxic salt. It does not seem likely that it will interfere with or modify the action of the tincture in any quantity which may be given.

The tests on toxicity, which are reported above, were made with the anhydrous salt.

The following formula is offered as a definite subject for consideration:

TINCTURA DIGITALIS.

Tincture of Digitalis.

Tr. Digit.	**Digitalis tinctura P. I.**
DIGITALIS, in fine powder	100 Gm.
GLACIAL ACETIC ACID	10 cc.
ANHYDROUS SODIUM ACETATE	60 Gm.
To make about	1000 cc.

Pack the digitalis firmly in a cylindrical glass percolator provided with a stopcock and arranged with a cover and receptacle suitable for volatile liquids, and percolate slowly with purified petroleum benzin until a few drops of the last percolate evaporated from paper leave no greasy stain. Reject the benzin percolate.

Remove the drug from the percolator and expose it to air until dry and the odor of benzin is no longer noticeable. Extract this defatted drug by percolation, using a mixture of 4 volumes of alcohol and 1 volume of water as the menstruum, after macerating three days and then percolating slowly. Collect 920 cc. of percolate, add to this the glacial acetic acid and then dissolve the anhydrous sodium acetate in the mixture. Assay a portion of this liquid and dilute the remainder with sufficient of a solution composed of 80 cc. of alcohol, 20 cc. of water, 1 cc. of glacial acetic acid and 6 Gm. of anhydrous sodium acetate to conform to the above biological standard.

RESEARCH LABORATORIES OF PARKE, DAVIS & CO.,
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THE GERMICIDAL ACTION OF 2-CHLORO-4-*n*-ALKYLPHENOLS.*

BY F. F. BLICKE AND R. P. G. STOCKHAUS.[1,2]

During the last few years a considerable number of new phenolic germicides have been introduced as therapeutic agents—compounds in which the antiseptic value of the phenolic nucleus has been augmented by the introduction of nuclear halogen or alkyl groups or by both types of substituents; for example, hexylresorcinol, *n*-amyl-*m*-cresol, chlorothymol and chlorocarvacrol.

It seemed to us that a very effective manner in which the germicidal power of phenol itself could be increased would be through the introduction of halogen and a long, straight side chain. Consequently, a homologous series of 2-chloro-4-*n*-

TABLE I.—2-CHLORO-4-*n*-ALKYLPHENOLS AND CORRESPONDING α-NAPHTHOATES.

Alkyl Group	B. P., ° C.	Phenols, Formulas.	Analyses, % Cl. Calc'd.	Found.	α-Naphthoates,[b] M. P., ° C.	Analyses, % Cl. Calc'd.	Found.
Methyl[a]	197–198, 738 mm.	C_7H_7OCl	24.88	25.14	108–110	11.95	12.03
Ethyl	216–217, 742 mm.	C_8H_9OCl	22.64	22.51	70–72	11.41	11.44
Propyl	226–227, 741 mm.	$C_9H_{11}OCl$	20.78	20.34	71–73	10.92	10.78
Butyl	243–244, 735 mm.	$C_{10}H_{13}OCl$	19.21	18.87	44–46	10.47	10.28
Amyl	259–260, 740 mm.	$C_{11}H_{15}OCl$	17.85	17.38	63–65	10.05	10.03
Hexyl	275–276, 740 mm.	$C_{12}H_{17}OCl$	16.67	16.00	43–45	9.67	9.71
Heptyl	290–291, 738 mm.	$C_{13}H_{19}OCl$	15.64	15.53	45–47	9.31	9.12

[a] This compound was first prepared by Schall and Dralle (*Ber.*, 17 (1884), 2528, and then by Zincke (*Ann.*, 328 (1903), 277). The last-mentioned investigator recorded the boiling point as 194–196°. [b] The α-naphthoate of *p*-cresol melts at 61–63°, the diphenyl-*p*-carboxylate at 122–124°. The benzoate of 2-chloro-4-methylphenol melts at 67–68°, the *p*-nitrobenzoate at 88–90°, the diphenyl-*p*-carboxylate at 111–113°. The benzoate of 2-chloro-4-ethylphenol melts at 44–46°.

All of the naphthoates listed in the above table were recrystallized from absolute alcohol; other esters which were found to be too soluble in alcohol were recrystallized from petroleum ether (30–60°). In a few instances the crude naphthoates were somewhat oily, hence they were cooled with ice and thoroughly triturated several times with small amounts of absolute alcohol prior to recrystallization.

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* Scientific Section, A. PH. A., Madison meeting, 1933.

[1] This paper represents the first part of a dissertation to be submitted to the Graduate School by Mr. Stockhaus in partial fulfilment of the requirements for the degree of Doctor of Philosophy in the University of Michigan.

Mr. Stockhaus is the present Frederick Stearns and Company Fellow.

[2] College of Pharmacy, University of Michigan, Ann Arbor, Michigan.

alkylphenols was prepared and it was found that the phenol coefficients of the compounds increased progressively from the methyl- to the heptylphenol, inclusive. The highest members of the series, the hexyl- and heptylchlorophenols, possess unusually high phenol coefficients.

Special emphasis was placed on the preparation of very pure samples for bacteriological tests. The chlorophenols which we prepared are oils and, consequently, it is almost impossible to purify small quantities of them by distillation. We purified each phenol in the following manner: fractionation of the crude product; conversion of a fraction which boiled over not more than one degree range into the crystalline α-naphthoate; careful purification of the latter by recrystallization; hydrolysis of the naphthoate; distillation of the recovered phenol. The purity of the material used for bacteriological tests was established by analysis (Table I).

The chloroalkylphenols were prepared in four stages according to the following general method: (*a*) preparation of the phenyl ester from the aliphatic acid chloride and phenol; (*b*) rearrangement of the ester by means of aluminum chloride into the 4-hydroxyphenylalkyl ketone; (*c*) reduction of the ketone to the 4-alkylphenol; (*d*) chlorination of the latter with sulphuryl chloride.

The lower members of the series are characterized by a strong cresol-like odor while the higher members are practically odorless.

EXPERIMENTAL PART.

The phenyl esters were prepared in the following manner. Equivalent amounts of phenol and the required acid chloride were heated at 140° for three hours. The esters were washed with sodium hydroxide solution and then purified by distillation. The yields varied from 75–86%. The boiling points of compounds not described hitherto are as follows: phenyl valerate, 116–120° (16 mm.); phenyl caproate, 134–136° (19 mm.); 255–257° (738 mm.); phenyl heptanoate, 155–157° (23 mm.).

Rearrangement of the esters to the 4-hydroxyphenylalkyl ketones was effected as follows. To one mole of the phenyl ester, dissolved in 400 cc. of nitrobenzene, there was added 1.5 moles of aluminum chloride. After four days the mixture was poured on ice and, after removal of the nitrobenzene by steam distillation, the ketone was purified by distillation under reduced pressure and then by recrystallization from benzene or xylene. The yields of pure products varied from 50–60%. The physical constants found agreed with those published in the literature.

In order to obtain the 4-*n*-alkylphenols a mixture prepared from one mole of the ketone, 1250 Gm. of amalgamated zinc, 750 cc. of water and 750 cc. of hydrochloric acid, was refluxed for four to seven days. During the course of each day an additional 100 cc. of hydrochloric acid was added. The boiling points found for the alkylphenols were practically the same as those recorded in the literature. The yields varied from 50–75%.

Finally, the 2-chloro-4-*n*-alkylphenols were obtained by the following general process. The alkylphenol was mixed with 1.1 molecular equivalents of sulphuryl chloride and after five days the product was washed free from halogen compounds with sodium carbonate solution and then purified by distillation. The distilled material was converted into the α-naphthoate in the following manner. Equi-

molecular amounts of the phenol and α-naphthoyl chloride were mixed and shaken vigorously while one molecular equivalent of pyridine was added slowly. After several hours the solid reaction mixture was triturated with ice water which contained one equivalent of hydrochloric acid. The solid product was filtered, washed with sodium carbonate solution, dried and recrystallized from alcohol. The ester was then hydrolyzed with one molecular equivalent of sodium hydroxide in 75% alcohol, the alcohol removed and the mixture neutralized with hydrochloric acid. After the addition of excess sodium carbonate the material was subjected to steam distillation. The phenol was extracted from the distillate with ether and purified by distillation.

The phenol coefficients (Table II, Column 1) were determined by Dr. W. L. Mallmann and carefully checked at a later date. 2-Chloro-4-*n*-heptylphenol was tested, independently, by Dr. C. W. Geiter who, likewise, found that this compound possesses the relatively high phenol coefficient of 666. Bacteriological data on 2-chloro-4-*n*-alkylphenols have been presented recently by Klarmann, Shternov and Gates (1); their results are reproduced in Table II, Column 2. Striking discrepancies between the values in Columns 1 and 2 are to be noticed in connection with the hexyl- and heptylphenols.

TABLE II.—PHENOL COEFFICIENTS.

(Reddish Method.)

Phenol.	Test Organism, *Staph. aureus.* (37° C.) 1.	2.
2-Chloro-4-methyl	9	7.5
2-Chloro-4-ethyl	18	15.7
2-Chloro-4-*n*-propyl	31	32.1
2-Chloro-4-*n*-butyl	115	93.8
2-Chloro-4-*n*-amyl	333	286.0
2-Chloro-4-*n*-hexyl	444	714.0
2-Chloro-4-*n*-heptyl	666	375.0
2-Chloro-4-tert.-amyl[a]	150	125.0
4-*n*-Capronyl[b]	40	...
2-Chloro-4-*n*-capronyl[c]	40	...
2,6-Dichloro-4-*n*-hexyl[d]	50[e]	...

[a] B. p. 247–248°. [b] M. p. 61–62° after recrystallization from absolute alcohol. [c] M. p. 79–81° after recrystallization from absolute alcohol; Anal. calcd. for $C_{12}H_{15}O_2Cl$: Cl, 15.65. Found: Cl, 15.50. [d] B. p. 308–310° under 745 mm. pressure; Anal. calcd. for $C_{12}H_{16}OCl_2$: Cl, 28.70. Found: Cl, 28.90. [e] This value was obtained by Dr. Geiter.

SUMMARY AND CONCLUSIONS.

A homologous series of 2-chloro-4-*n*-alkylphenols has been prepared in which the alkyl groups range from methyl to heptyl, inclusive.

The phenol coefficients of highly purified samples of these compounds increased progressively from the methyl- to the heptylphenol and for the latter substance the relatively high value of 666 was obtained.

REFERENCE.

(1) Emil Klarmann, V. A. Shternov and L. W. Gates, *J. Am. Chem. Soc.*, 55 (1933), 2580. Except for a few confirmatory bacteriological tests our investigation had been completed about six months prior to the publication of the article by Klarmann and coworkers.

SOME FACTS CONCERNING THE PHARMACOLOGICAL AND PHYSIOLOGICAL ACTION OF ACETANILID.*

BY SAMUEL T. HELMS, M.D.

The object of this paper is to present, without elaboration at this time, some facts obtained by animal and clinical experimental work concerning the action of acetanilid.

For years opinions concerning the action of this drug have obtained which pharmacological and clinical evidence prove to be erroneous.

Many errors in the literature appear to be there for the reason that no one has taken the trouble to disprove them, so they remain and grow and pass from year to year, from book to book.

The following topics are considered of sufficient importance to be included:

(1) The toxic dose when the drug is given by mouth.
(2) The minimum lethal dose.
(3) The effect of continuous ingestion.
(4) The effect upon the circulatory system.
(5) The effect of continuous use as determined by clinical experimental work.
(6) Occurrence of untoward effects as shown by hospital records.
(7) Acetanilid and cyanosis.

THE TOXIC DOSE.

In this investigation, all the usual laboratory animals have been used, and the doses were given in terms of milligrams per kilogram, so that each milligram corresponds to one grain for an average sized adult.

Briefly, the manifestations of toxic action become evident in the following order and character:

100 mg. per Kg. cause no evidence of toxic action.

200 mg. per Kg. cause dogs to salivate some, but cause no signs in other animals.

400 mg. per Kg. produce marked salivation in dogs, with restlessness. In rabbits, the toxic action is shown by weakness in the hind legs, but the animals move about and eat. Rats become moderately depressed but come to the cage door for food. All animals completely recover by the next day.

800 mg. per Kg. cause marked increase in all of the above signs, and in addition dogs and rats develop dyspnœa. All recover.

1000 mg. per Kg. have repeatedly failed to produce fatal results.

THE MINIMUM LETHAL DOSE.

The M. L. D. for guinea pigs and for rabbits is 1500 mg. per Kg.

For rats it is 2400 mg. per Kg. given by stomach tube in 50% alcohol.

Dogs have not been given more than 1000 mg. per Kg. due to the large amount of fluid required to wash the drug into the stomach. This much is not fatal to the dog.

Mice survive up to 1350 mg. per Kg. given hypodermically.

THE EFFECT OF CONTINUOUS INGESTION.

Mice.—Although the M. L. D. for mice, when injected hypodermically, is 1350 mg. per Kg., mice take half this amount daily in drinking water, with no

* Scientific Section, A. PH. A., Madison meeting, 1933.

effect upon them except a delay in growth, which is recovered from when the acetanilid is withdrawn.

These animals taking 500 mg. per Kg. per day for a month, triple their weight. They take 325 mg. per Kg. plus 60 mg. per Kg. of caffeine for a month, with no deleterious effect.

(Personal communication from Dr. H. A. McGuigan, University of Illinois, Department of Pharmacology. Extract of this work appeared in the July issue of the *Journal of Pharmacology and Experimental Therapeutics*.)

Rats.—Rats given 5 to 10 mg. per Kg. per day in milk, through four generations, reproduce in normal numbers, develop normally, care for their young and show no deviation in morbidity or mortality from the average for an unmedicated rat population.

Rats given 250 mg. per Kg. in 50% alcohol daily for two weeks, show no anemia in daily blood pictures and examination of the bone narrow at the end of this time shows it to be normal.

Rabbits.—Rabbits given 10 mg. per Kg. twice daily for 3 months, and the same amount four times daily for a second 3 months, gain 200–400 Gm. and monthly examinations of blood and urine disclose no pathological findings in either.

Dogs.—Two dogs carried for three months on four grains twice daily, have grown normally, and maintained normal appetites and good general condition. One had pups, and received the drug through gestation and lactation. All pups lived and reached maturity.

Two dogs receiving five grains each, twice daily, for a year, progressed normally, the blood and urine remained normal, as shown by monthly examinations, and no spectroscopic changes developed in the blood.

Autopsy of the animals at the end of this period, with histological examination of cardiac muscle, liver, spleen, kidneys, brain and cord, has shown no pathological changes.

THE EFFECT UPON THE CIRCULATORY SYSTEM.

When acetanilid, in fatal amounts, is injected intravenously, animals do not die a cardiac death, but a respiratory death.

A large number of myocardiographic tracings have been made upon dogs under Nembutal anesthesia that bear this out.

A dog was given two grains by stomach tube every half hour for 12 doses, and another was given four, and another 12 at like intervals, and no changes were produced in the tracing.

One-drachm doses were given by mouth, with no significant changes occurring.

One drachm introduced directly into an intestinal loop, through an enterostomy, caused no depression of the circulation, when observed over a whole day.

Although conclusions should not be drawn from intravenous injections, this was also done. 100 mg. per Kg. as a 0.5% solution in sodium chloride was infused, at hourly intervals for a whole working day, with no evidence of depression.

Alcohol—20 cc. of 35% solution—intravenously, produced depression quickly recovered from. Repetition of this dose twice was fatal.

Ten cc. of mucilage acacia intravenously produced a change in the tracing,

identical with that caused by 10 cc. of the same solution to which had been added 5% acetanilid.

THE EFFECT OF CONTINUOUS USE AS DETERMINED BY CLINICAL EXPERIMENTAL WORK.

Ten individuals were given 4 grains of acetanilid at 9:00–9:30 and 10:00 A.M. daily, for a period of 16 weeks and were subjected to weekly examinations with the following findings:

(1) No changes in physical examination as shown by weekly check ups.

(2) No effect on nervous system as evidenced by expert neurological examination.

(3) No effect on heart muscle or conducting mechanism as evidenced by weekly electrocardiograms, by well-sustained blood pressure, and physical examination of the heart.

(4) No effect on metabolism as shown by B. M. R.

(5) No methemoglobin formation or other spectroscopic changes as shown by spectroscopic examination of the blood.

(6) No effect on kidneys as shown by kidney function, tests and urinalyses.

(7) No changes in blood chemistry findings.

(8) No blood destruction as evidenced by the fragility, the Van den Bergh test and icteric index.

(9) A transitory effect upon hemopœsis as shown by initial slight changes in red cell counts which soon return to normal and are found normal at the conclusion of the test.

OCCURRENCE OF UNTOWARD EFFECTS AS SHOWN BY HOSPITAL RECORDS.

Statistical data were secured by mailing questionnaires to all of the hospitals and institutions in the United States. Replies were received, which represented 2,500,000 hospital admissions annually for 10 years, or a total of 25,000,000 people.

Total poisonings in the records of these institutions were 5.6 per million and deaths 0.16 per million.

Similar figures concerning the barbituric acid derivatives for poisonings were ten times that of acetanilid and for deaths were nine times as large.

The significance of these figures is in the way these drugs are used. The frequency of the use of acetanilid, in various preparations, far exceeds that of the hypnotic group. The acetanilid group is used largely by the laity for self medication, while the use of the hypnotic group is to a larger extent in the hands of physicians.

In this connection an interesting observation is made in the Prescription Ingredient Survey. The use, by prescription of acetanilid and phenacetin has decreased, the former markedly, the latter less so, while the use of the hypnotic compounds has increased to such extent that they occur more than once in every ten prescriptions or about 28,700,000 times a year.

ACETANILID AND CYANOSIS.

It is now apparent that the cyanosis seen in rare instances in connection with the alleged use of acetanilid is not dependent upon the use of drugs. The condition is always associated with constipation, and is only relieved when the constipation is relieved. The cause lies in an abnormality within the individual himself. A study of the fifty cases of this condition reported in the literature discloses that the taking of drugs was ruled out in thirty-six.

The abnormal hemoglobin derivative developed is not methemoglobin but is sulphurhemoglobin. This compound is formed by the action of hydrogen sulphide on the blood, and as acetanilid contains no sulphur it cannot be the cause of the condition.

CONCLUSIONS.

1. The toxic dose of acetanilid is about 100 times the therapeutic dose.
2. The M. L. D. in general agrees for all laboratory animals and is around 1500 mg. per Kg. or 500 times the therapeutic dose.
3. Continuous ingestion of large amounts has no deleterious effects upon animals.
4. Acetanilid is not a circulatory depressant.
5. Twelve grains a day for 16 weeks has no deleterious effect upon human subjects.
6. In the hospital records of the United States, cases of poisoning and deaths from the drug are of insignificant number.
7. In the hands of the Medical Profession, the use of these analgesic drugs has largely been replaced by the use of intellectually depressant, or sleep-producing, drugs.
8. The cyanosis seen at times in connection with the use of these drugs is not dependent upon drug action, but upon an individual predisposition of the user.

EMERSON TOWER BUILDING,
BALTIMORE, MD.

THE CHEMICAL AND PHARMACOLOGICAL PROPERTIES OF CALCIUM ACETYLSALICYLATE.*,[1]

BY H. E. THOMPSON AND C. A. DRAGSTEDT.

(From the Department of Physiology and Pharmacology, Northwestern University Medical School, Chicago.)

During the past year, we have had an opportunity to examine several powder and tablet preparations of calcium acetylsalicylate. Inasmuch as this substance is marketed abroad while little information concerning it is available in American literature, we thought it worth while to record our observations with respect to its chemical, physical and pharmacological properties.

The following preparations were available for testing:

1. Kalmopyrin. Tablets and powder of calcium acetylsalicylate manufactured by the Chemical Works of Gideon Richter, Budapest.
2. Calcium Acetylsalicylate. Tablets and powder made for us by Arner and Company, Buffalo, New York.
3. Calcium Acetylsalicylate. Powder prepared in the laboratory.

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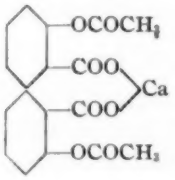
* Aided by a grant from the Wodlinger fund.

[1] Scientific Section, A. PH. A., Madison meeting, 1933.

CHEMICAL COMPOSITION.

Calcium acetylsalicylate is a definite chemical compound $[C_6H_4O(CH_3CO)\text{-}COO]_2Ca$ with the following structural formula:



METHOD OF PREPARATION.

Several methods of preparation are employed, which consist for the most part of neutralizing solutions of acetylsalicylic acid with some calcium base (1, 2).

In the study of the chemical, physical and pharmacological properties of calcium acetylsalicylate, a comparison was made with U. S. P. preparations of acetylsalicylic acid obtained on the open market (Merck, Bayer). The following observations were made:

1. Solubility.

The solubilities of the various preparations were determined by the method of the U. S. P. X and are expressed in the following table (averages of four samples).

Preparation: Cc. of Solvent Required to Dissolve 1 Gm.

	Water.	Alcohol.	Ether.	Chloroform.	0.4% HCl.	Cottonseed Oil.	Dog's Gastric Juice.
Calcium acetylsalicylate (unhydrolyzed)	6	416	1428	1428	12.9	Not clearly soluble	Slowly soluble
Kalmopyrin	5[1]	400	435	666	12.7	Not clearly soluble	Slowly soluble
Acetylsalicylic acid (Merck)	300	5	10–15	17	..	Not clearly soluble	Slowly soluble

[1] Not clearly soluble in water.

2. Tests for Identity and Purity.

a. Reaction to Indicators.—Calcium acetylsalicylate (domestic) is neutral or faintly acid to litmus. It does not change color when phenolphthalein is added to an aqueous solution. Calcium acetylsalicylate (Kalmopyrin) is slightly acid to litmus.

b. Tests for Identity U. S. P. Method.—The *melting point* of calcium acetylsalicylate (domestic) is 100–105° C.; of calcium acetylsalicylate (foreign) is not definite (about 85° C.), while that of acetylsalicylic acid is 132° C.

Other tests for the identity of calcium acetylsalicylate correspond to those of acetylsalicylic acid U. S. P.

c. Tests for Purity U. S. P.

Solution.	T.S. of Lead Acetate.	T.S. of Silver Nitrate.	T.S. Mercuric Chloride.	T.S. of Ammonium Oxalate.	Color with Ferric Chloride T.S.
1. Calcium acetylsalicylate (unhydrolyzed)	No ppt.	Gelatinous ppt.	No ppt.	White ppt. (Ca)	Muddy brown but no violet color

2. Calcium acetylsalicylate (Kalmopyrin)	No ppt.	Gelatinous ppt.	No ppt.	White ppt. (Ca)	Brown violet
3. Acetylsalicylic acid (Merck)	No ppt.	Gelatinous ppt.	No ppt.	No ppt.	Faint violet

The U. S. P. tests for organic impurities were negative in all three salts.

3. Stability.

In order to determine the stability of the calcium acetylsalicylate preparations, they were examined upon receipt for odor, appearance and the presence of free salicylic acid. This examination was repeated at monthly intervals for five months, with the results appearing in the following table:

Preparation.		At Time of Receipt.	30 Days.	60 Days.	90 Days.	120 Days.	150 Days.
Calcium acetylsalicylate (domestic)	Odor	Earthy	No change	No change	No change	Slightly acetic	Acetic
	Appearance	Fine powder	No change	No change	No change	Slightly acetic	Slight change
	Free salicylic acid[1]	Negative	Negative	Negative	Negative	Trace	Definite
Calcium acetylsalicylate (Kalmopyrin)	Odor	Slightly acetic	Acetic	Acetic	Strongly acetic	Strongly acetic	Strongly acetic
	Appearance	Fine powder	Same	Fine crystalline deposit			
	Free salicylic acid	Trace	Definite to →				Marked
Acetylsalicylic acid U. S. P.	Odor	Earthy	No change throughout				
	Appearance	Fine powder	No change throughout				
	Free salicylic acid	Slight trace	No increase on standing				

[1] Attention should be called to the fact that the ordinary color reaction between free salicylic acid and ferric chloride is interfered with by the presence of calcium. The A. O. A. C. method of testing the ether extract should be employed.

The essential physical and chemical properties of calcium acetylsalicylate may be summarized as follows: It is freely soluble in water and very slightly soluble in ether, alcohol and chloroform while the reverse is true for acetylsalicylic acid. The differences between calcium acetylsalicylate and acetylsalicylic acid with respect to the various tests for identity and purity are dependent on the calcium (and chloride?) content. Upon first examination, the foreign preparation of calcium acetylsalicylate (Kalmopyrin) contained relatively large amounts of free salicylic acid in contrast with the domestic preparation and with acetylsalicylic acid. However, it was found that the domestic preparation was not permanently stable and as time went on, more and more free salicylic acid appeared. This instability was thought at first to be due to the methods of manufacture and calcium acetylsalicylate was prepared in the laboratory by a variety of methods. None, however, was successful in yielding a stable product. It was uniformly observed that the tablet preparations of calcium acetylsalicylate were more rapidly hydrolyzed than the powder presumably owing to the moisture necessary in tablet manufacture. Tablets kept in cardboard boxes preserved a good appearance

although containing considerable free salicylic acid, while those kept in tightly stoppered containers became moist, discolored, and exhibited crystals of salicylic acid on the surface.

PHARMACOLOGICAL STUDIES.

Prior to the time that it became apparent that calcium acetylsalicylate was unstable, an investigation of the pharmacological actions of this preparation was undertaken particularly with reference to a comparison with similar actions of acetylsalicylic acid. The essential findings are indicated in the following sections:

1. Absorption and Excretion.

Five healthy male adults ranging in age from 20 to 25 years were given 10-grain doses of calcium acetylsalicylate or acetylsalicylic acid with a small amount of water about two hours after the noon meal. The urine was examined at intervals and the time of the first appearance as well as the duration of excretion of salicylic acid (or salicyluric acid) in the urine determined. In ten experiments with calcium acetylsalicylate, salicylic acid appeared in the urine in 20, 40, 30, 30, 20, 30, 60, 30, 30 and 35 minutes, respectively, with an average of 32 minutes. In five experiments with acetylsalicylic acid, the results were 120, 60, 60, 45 and 120 minutes, respectively, with an average of 81 minutes. The average duration of excretion of salicylic acid in the urine after calcium acetylsalicylate administration was 33 hours, while with the acetylsalicylic acid it was 26 hours.

From these results, it appears that calcium acetylsalicylate is somewhat more rapidly absorbed but more slowly eliminated than acetylsalicylic acid.

2. Gastric Irritation.

An important consideration in salicylate medication is the irritant effect of such preparations upon the gastro-intestinal tract which may contribute to the nausea and vomiting which salicylates produce by central action after their absorption. Consequently it was considered advisable to compare the action of the calcium acetylsalicylate compounds with acetylsalicylic acid in this regard. This was done by intensive administration of the compounds to healthy dogs and noting the incidence of vomiting. A single dose of 1 Gm. per Kg. of either acetylsalicylic acid, calcium acetylsalicylate (Kalmopyrin) or calcium acetylsalicylate (unhydrolyzed) regularly induced vomiting in all dogs. Similarly vomiting regularly resulted in all dogs after two doses of 0.33 Gm. per Kg. each, repeated in 90 minutes. With a dose of 0.166 Gm. per Kg. repeated at intervals of 30 minutes, vomiting occurred with Kalmopyrin after the second dose, after the fourth dose of acetylsalicylic acid and after the fifth dose of the (unhydrolyzed) calcium acetylsalicylate. The foreign preparation of calcium acetylsalicylate (Kalmopyrin) which contained definite amounts of free salicylic acid is obviously more irritating than the other two. There is little or no difference in this regard between acetylsalicylic acid and the unhydrolyzed calcium acetylsalicylate. That the vomiting induced by these large doses administered in frequent intervals is reflex in character and due to gastric irritation is indicated both by the rapidity with which the emesis results after the administration and also by the fact that the emesis was produced with significantly less amounts of salicylate than can be tolerated

if the administration is such as to minimize the opportunities of irritation to the stomach. If, however, a dose is selected which is below the irritating dose and given at such a time interval that the administration is in excess of excretion, vomiting will then eventually occur, presumably due to the central action of the salicylates upon the vomiting center. That the salicylates may induce vomiting both by local gastric irritation and central action is also indicated at times by the effect of the single administration of very large doses. Immediate vomiting (due to local irritation) results. Then after three or four hours vomiting recurs apparently due to the central action of the salicylates which were not expelled by the vomiting.

3. Toxic Effect on the Kidneys.

To determine the effect of these compounds upon the kidney, they were administered to healthy dogs in various dosages and time intervals and the incidence of albuminuria noted. Acetylsalicylic acid and the unhydrolyzed calcium acetylsalicylate in doses of 0.100 Gm. per Kg. per hour for five doses did not produce an albuminuria. Acetylsalicylic acid in doses of 0.166 Gm. per Kg. four times daily induced an albuminuria when the total dosage given had reached 0.800 Gm. per Kg. Unhydrolyzed calcium acetylsalicylate in doses of 0.166 Gm. per Kg. four times daily did not induce an albuminuria and the dog was sacrificed when the total dosage given had reached 6.0 Gm. per Kg. Although the number of animals employed is small, there is an indication of a marked difference between the compounds in their effect upon the kidney. Kalmopyrin is considerably more irritating than the other two, apparently due to the free salicylic acid present. On the other hand, the unhydrolyzed calcium acetylsalicylate appears to be definitely less irritating than acetylsalicylic acid.

4. Toxicity.

Another important consideration in the intensive medication with the salicylates is the development of the so-called secondary signs of toxicity. In an effort to determine if any differences in the onset of the secondary symptoms of toxicity could be demonstrated, the compounds were administered in varying dosage levels to dogs. The onset of toxicity was determined by one or more of the following symptoms, convulsions, marked vertigo and staggering gait, marked asthenia or apparent disturbances in vision and hearing. At a dosage of 0.33 Gm. per Kg. repeated after 4 hours, dogs regularly vomited after the second dose with all compounds as indicated previously and it was not possible to continue administration at this dosage level. In the case of Kalmopyrin there was some evidence of toxic symptoms after the second dose.

At a dosage level of 0.165 Gm. per Kg. repeated at intervals of three times daily toxic symptoms developed with Kalmopyrin after the second dose, with acetylsalicylic acid after the twenty-eighth dose and with unhydrolyzed calcium acetylsalicylate after the thirty-seventh dose. At a dosage level of 0.100 Gm. per Kg. repeated at hourly intervals, toxic symptoms developed with Kalmopyrin after the second dose, with acetylsalicylic acid after the fourth dose and with calcium acetylsalicylate after the fourteenth dose. The dog receiving the acetylsalicylic acid died after the fourteenth dose. The one receiving the calcium acetyl-

salicylate was carried for several days longer and the administration then discontinued.

It is readily apparent from these results that Kalmopyrin is definitely more toxic than either of the other two compounds. There is likewise some indication that the unhydrolyzed calcium acetylsalicylate is less toxic than acetylsalicylic acid. The difference in toxicity appears to be greater than the difference in salicylate content of these compounds. From these results, it is not possible to state whether this apparent difference is due to a protective action of the calcium or to an alteration in the absorption and excretion rate which would vary the time required for the cumulative effect of these compounds to reach a toxic level in the blood or tissues.

It is difficult to determine the acutely fatal dose of such compounds as acetyl salicylic acid—as large doses given by mouth are promptly vomited and the compounds are too insoluble to be given readily by vein. For calcium acetylsalicylate, the intravenous fatal dose can be determined readily as it is sufficiently soluble. For calcium acetylsalicylate, the intravenous fatal dose in dogs was found to be between 0.60 and 0.75 Gm. per Kg.

SUMMARY.

From this study, the following remarks seem warranted. The unhydrolyzed calcium acetylsalicylate has certain advantages over acetylsalicylic acid in that it is more soluble in water, more readily absorbed, has less tendency to produce an albuminuria and is apparently less toxic as judged by the development of the so-called secondary signs of toxicity. It is apparently unstable, however, and as hydrolysis continues with the liberation of free salicylic acid, etc., it becomes more irritating to the gastric mucosa, more toxic and more likely to induce an albuminuria. This is illustrated by the results with Kalmopyrin in which such hydrolysis was quite marked.

REFERENCES.

(1) Coplans Myer, Patentschrift Nr. 534785, October 1, 1931.
(2) J. Altwegg, U. S. Patent Office, No. 1,431,863.

ADMINISTRATOR'S ORDER.

In accordance with Schedule A, Section 5 of this code (a Code of Fair Competition for the Retail Trade, approved by the President on October 21, 1933), the representatives upon the national retail drug trade council may, until such time as the trade associations who presented the code for the retail drug trade shall have submitted for approval a method of electing representatives or until I shall otherwise designate, be those who have already been elected by, or appointed by the board of directors of the AMERICAN PHARMACEUTICAL ASSOCIATION, the Drug Institute of America, Inc., and the National Association of Retail Druggists.

HUGH S. JOHNSON,
Administrator for National Recovery.

WASHINGTON, D. C.
October 24, 1933.

Approved:
A. D. WHITESIDE, *Division Administrator.*

COLOR STANDARDS FOR COD LIVER OIL.*

BY ARTHUR D. HOLMES AND FRANCIS TRIPP.

The present pharmacopœia (1) provides that the color of cod liver oil shall be "pale yellow." Obviously this specification is not sufficiently definite to be of practical value. As noted by Taub (2) the term "pale yellow" "may imply that a colorless oil would not meet the U. S. P. requirements or it may leave the observer in doubt as to whether the oil in question is slightly darker than pale yellow."

After a careful study conducted to obtain satisfactory color standards for cod liver oils, Taub (2) has suggested the use of solutions of cobalt and ferris chlorides as originally proposed by Arny (3). The proposal made by Taub for consideration by the Committee of Revision of the U. S. Pharmacopœia for interim revision of the text of U. S. P. X and for continuation in U. S. P. XI reads as follows:

> "The oil, when placed in a 4-ounce, tall, cylindrical, standard oil-sample bottle, and viewed transversely, shall not be more highly colored than a solution placed in a similar bottle and containing 3.6 cc. $M/4$ $CoCl_2 6H_2O$, 48.4 cc. $M/6$ $FeCl_3 . 6H_2O$ and 68 cc. of distilled water. (Or if Standard No. 2 is adopted, these figures would be 11 cc. $M/4$ $CoCl_2 6H_2O$, 76 cc. $M/6$ $FeCl_3 \cdot 6H_2O$ and 33 cc. of distilled water.)
>
> "It would also be necessary to provide for two test solutions: $M/4$ $CoCl_2 6H_2O$ contains 59.4965 Gm. of this salt per liter of 1 per cent HCl. $M/6$ $FeCl_3 . 6H_2O$ contains 45.054 Gm. of this salt per liter of 1 per cent HCl. Provision should be made for standardizing these solutions volumetrically, as described in a previous paper."

Obviously this specification is a decided improvement over the present provision relative to "pale yellow" oil but it is subject to some criticism. It is difficult to accurately estimate the intensity of color by viewing transversely cylindrical bottles of oil. The layer of oil to be viewed is over an inch thick at the center and rapidly decreases to no thickness at the sides; the glass sides of four-ounce, tall, cylindrical, standard oil-sample bottles are not uniform when viewed transversely; and no provision is made for a uniform source of light. It was with a desire to improve upon these features of the proposed U. S. P. color standards for cod liver oil that this study was undertaken.

In comparing the color of a cod liver oil and the standard inorganic salt solution it is essential to view them through layers of equal depth and this was accomplished by using 50-cc. Nessler Tubes (A. P. H. A. type). These, made of clear, colorless glass with polished bottoms, may be purchased of chemical supply houses in Matched Sets of six or twelve tubes. Thus the operator is assured of columns of oil and standard of the same surface area and of the same depth. Moreover, since the columns of oil and standard are eight and one-half inches deep a far more accurate comparison can be obtained than is possible by viewing layers of oil and standard which vary from about one and one-third inches to 0 inches in depth. Moreover in comparing the colors of columns of oil and standard by viewing them vertically in Nessler tubes one looks directly at the oil and standard instead of viewing variable depths of oil and standard through convex glasses.

Since the composition and intensity of daylight varies with the location of different laboratories; with the season of the year; from day to day; and even

* Presented before the Division of Medicinal Chemistry, American Chemical Society, Chicago meeting.

from hour to hour of the same day it seemed highly desirable to provide a source of light which could be conveniently duplicated in other laboratories. Taub (2) has very wisely pointed out that the method for testing the color of cod liver oil should be simple and inexpensive. Accordingly the apparatus devised for this study requires a minimum of materials and is easy of construction. If the services of a cabinet maker are available and the finished apparatus is carefully stained, a handsome piece of laboratory equipment can be produced. On the other hand any laboratory assistant who is at all adept with carpenters' tools can make the apparatus satisfactory for practical needs. The external appearance of the apparatus is illustrated in Fig. 1 and the details of its construction are shown in Fig. 2. One

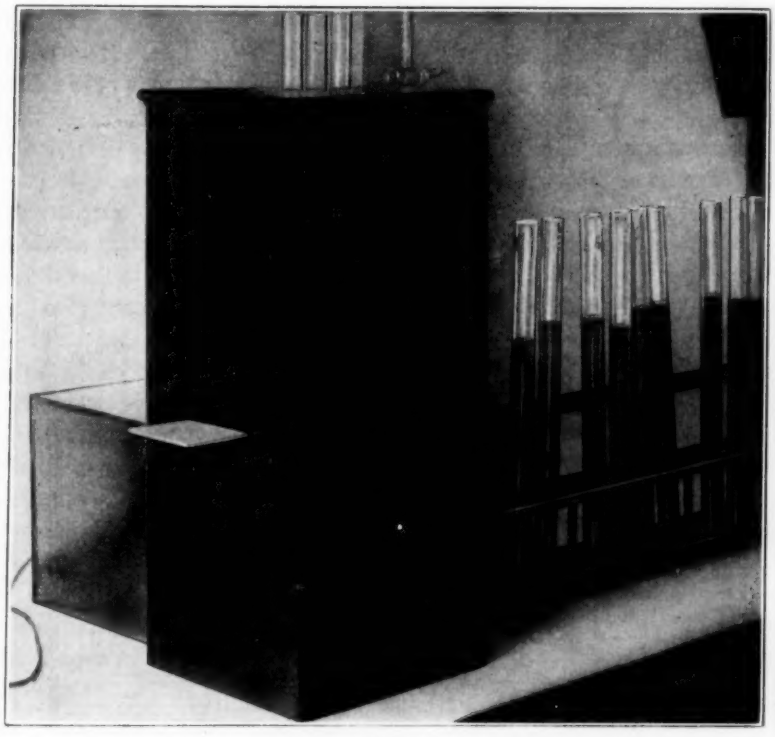


Fig. 1.

feature not shown in Fig. 2 should be provided. Holes or slits should be made in the bottom and top or top of the sides of the lamp section to provide sufficient ventilation to prevent scorching the paint on the interior walls, for this would decrease the reflection of light to the under side of the ground glass upon which the Nessler tubes stand. In this connection it may be noted that the lamp, 100 Watt, blue, daylight Mazda, which is to be used as a source of light should be so placed that reflected light is obtained. If it is placed directly beneath the Nessler tubes unsatisfactory lighting results. As will be noted in Figs. 1 and 2 a tube of oil and of standard, or two tubes of standards with a tube of oil between are placed in the apparatus vertically so that the columns of oil and standard can be compared by viewing them vertically.

Coincident with tests of the color of an extensive series of cod liver oils a study was made of the permanence of the color of the proposed standard solution. A quantity of the standard solution was placed in four-ounce, tall, cylindrical, oil-sample bottles since it was felt that thus the surface area exposed to light action would be equal to or greater than that of solutions stored in reagent bottles under average laboratory conditions. One of the bottles was placed in a wood cupboard from which practically all light was excluded. The second was placed on a laboratory reagent shelf. The third was placed on the roof and thus exposed to three

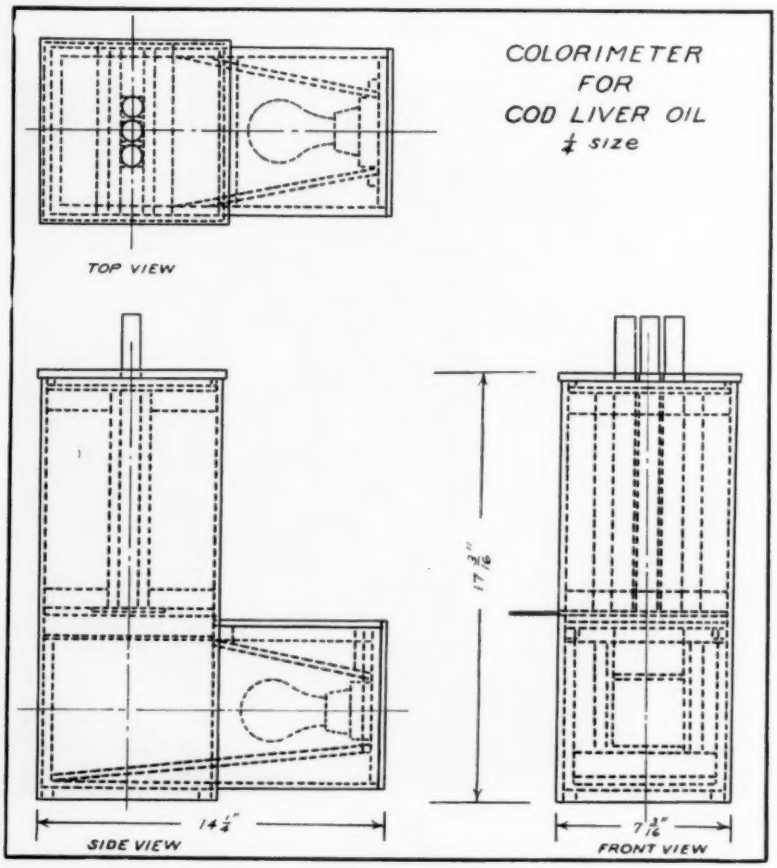


FIG. 2

weeks of late May sunshine and the fourth bottle was subjected to Fade-ometer tests (4). The Atlas Electric Device Co. instrument that was used in these tests was provided with violet carbon arcs which had an electricity consumption of 13 amperes at 220 volts. It was claimed that one-quarter hour of the Fade-ometer light was equivalent to one hour of maximum intensity, noonday, June sunlight at 41° 50′ N. latitude. The standard solution was exposed to this light for 65 hours which would be equivalent to 260 hours of noonday, June sunlight at the latitude noted. Tests, made in the apparatus described above, of the color of the four samples five weeks after they were prepared revealed no difference in the color of

samples Nos. 1, 2 and 3. The color of sample No. 4 was noticeably though not seriously darker than sample No. 1 which was used as a control. However, since the heat and light to which sample No. 4 was subjected was so much more intense than that to which reagents are subjected it is assumed that the color of the standard solution is sufficiently "permanent" to remain constant during the period that standard solutions are ordinarily used for accurate quantitative analyses.

While the primary purpose of determining the color of a series of cod liver oils to be discussed later was to ascertain what proportion of average cod liver oils complied with the proposed color standard it seemed highly desirable to also determine to what extent the oils deviated from the standard. To provide such data additional solutions were prepared. Four of these which retained the shade but not the intensity of the color of the standard (U. S. P. No. 1) were prepared by diluting the standard with varying amounts of distilled water. These solutions numbered in sequence in order of increasing intensity of color constituted the first portion of the color scale used in this study. As will be noted on inspection of the formulas of the proposed U. S. P. standards, "Standard No. 2" which is suggested as the maximum color for medicinal oil is more intense and of a darker shade than "Standard No. 1" which is also suggested as the maximum color for medicinal cod liver oil. Accordingly this difference was divided into four steps of increasing intensity and redness by preparing three solutions containing the requisite amounts of cobalt and iron chlorides. Hence, the color scale employed in this study consisted of nine solutions of cobalt and iron chlorides of which No. 5 and No. 9 were the proposed U. S. P. standard solutions No. 1 and No. 2, respectively. The composition of the nine solutions computed on a liter basis are reported in Table 1.

The series of over one hundred cod liver oils that have been compared with this color scale may be conveniently classified as crude oils, medicinal oils of American and European origin, old medicinal oils and cod liver pressings or cod liver stearin. Since the latter is a somewhat variable product and is little used for human consumption the results obtained in a comparison of these with the color scale will not be discussed here. Inasmuch as the free fatty acid content of cod liver oil is sometimes considered as indicating the age of an oil a free fatty acid determination was made for each of the oils studied.

Since crude cod liver oil is the oil as it is originally obtained from cod livers and since crude cod liver oil is the source of all medicinal cod liver oil the results obtained for the crude oils will receive first consideration in this discussion. These oils, which were principally of American origin, were produced at points along the Atlantic Coast from Cape Cod to Northern Newfoundland. The values assigned to the color of these oils and their free fatty acid content are reported in Table 2. In the absence of any data to the contrary it has been assumed that these oils have not received any alkali treatment and that the acid values represent the condition of the oils as they were extracted from the livers. An inspection of Table II reveals that only 16 of the 54 oils met the proposed U. S. P. Color Standard No. 1 for medicinal cod liver oil. Hence, 38 of this series of oils would have been denied entry to the United States had this proposed color standard been in force. Of these 38 oils six were without doubt too dark for use in the manufacture of medicinal oil. However, a question may properly be raised concerning the desirability of excluding

from the country those crude oils which are not greatly darker than the proposed U. S. P. Standard No. 1. Three of the oils under discussion, Nos. 1310, 1386 and 1440, were taken from large lots of crude oil which were subsequently chilled and pressed in the routine manufacture of cod liver oil. The resulting medicinal oils Nos. 1316, 1409 and 1452, respectively, when sampled and compared with the color standards were found to be significantly lighter in color. If these results can be considered as typical of crude oils then 32 of the oils reported in Table 2 as not meeting the proposed U. S. P. Standard No. 1 would comply with the specifications when chilled and pressed.

TABLE I

COLOR OF COD LIVER OIL

FORMULAE FOR STANDARDS

STANDARD NO.	SOLUTION A * (C.C PER LITER)	SOLUTION B X (C.C. PER LITER)	DISTILLED WATER (C.C. PER LITER)
1	15.00	201.67	783.33
2	18.75	252.08	729.17
3	22.50	302.50	675.00
4	26.25	352.92	620.83
5	30.00	403.33	566.67
6	45.42	536.00	418.58
7	60.83	618.75	320.42
8	76.25	651.67	272.08
9	91.67	633.33	275.00

* SOLUTION A — 59.4965 GMS $CoCL_2 \cdot 6 H_2O$ PER LITER OF 1% HCL

X SOLUTION B — 45.0540 GMS $FeCL_3 \cdot 6 H_2O$ PER LITER OF 1% HCL

On referring to Table II it will be noted that the free fatty acid content of the crude oils studied varied from 0.144% for oil No. 1466 to 1.565% for oil No. 1282. It will also be noted that while the U. S. P. X permits a maximum of 1.41% free fatty acid only one of the crude oils, No. 1282, exceeded this value and with the exception of four other oils the fatty acid content of the 54 crude oils is less than two-thirds of the free fatty acid content permitted. In fact many of the oils had a free fatty acid value of only one-fourth or one-third that permitted by the U. S. P. The darkest of the 54 crude oils studied, Nos. 1282, 1396, 1278, 1279 and 1280, have the highest free fatty acid values, namely, 1.565%, 1.033%, 1.022%, 1.075% and 1.053%, respectively. On the other hand the free fatty acid values, 0.463%, 0.428%, 0.339%, 0.505%, 0.927% and 0.804%, which are for the lightest colored oils Nos. 1437, 1318A, 1371, 1405, 1388 and 1447, respectively, were far from the lowest free fatty acid values obtained. Moreover, the free fatty acid values of 0.144%, 0.264%, 0.296%, 0.304%, 0.331%, 0.332%, 0.348%, 0.355% and 0.356% for samples Nos. 1466, 1365, 1361, 1384, 1360, 1385, 1296, 1379 and 1398 are for cod liver oils which are darker than the proposed U. S. P. Standard No. 1. A careful comparison of the free fatty acid content of the oils with the color values assigned to them will show that while there is a tendency for the darker oils to have high acid values and the lighter oils to have decidedly lower free fatty acid values there is no close correlation between the fatty acid value and the color of cod liver oil.

The results obtained for medicinal oils of American origin appear in Table 3. As will be noted on referring to color values only two oils failed to comply with the proposed U. S. P. Standard No. 1 and those were only slightly darker than the

standard. From the results obtained with this limited series of American oils it appears that these oils are of quite satisfactory color.

TABLE 2

COLOR OF COD LIVER OIL

LAB. NO.	CRUDE (AMERICAN)	F.F.A. %	COLOR SCALE 1 2 3 4 5 6 7 8 9
1282	"	1.565	
1405	"	0.505	
1388	"	0.927	
1396	"	1.033	
1445	"	0.905	
1447	"	0.804	
1278	"	1.022	
1279	"	1.075	
1280	"	1.053	
1317	"	0.445	
1336	"	0.382	
1382	"	0.484	
1387	"	0.792	
1389	"	0.710	
1446	"	0.347	
1448	"	0.537	
1475	"	0.553	
1476	"	0.501	
1466	"	0.144	
1320	"	0.587	
1335	"	0.536	
1398	"	0.356	
1438	"	0.620	
1480	"	0.444	
1365	"	0.264	
1366	"	0.499	
1362	"	0.598	
1296	"	0.348	
1297	"	0.459	
1433	"	0.674	
1477	"	0.686	
1364	"	0.483	
1360	"	0.331	
1379	"	0.355	
1385	"	0.332	
1361	"	0.296	
1381	"	0.464	
1384	"	0.304	
1363	"	0.364	
1380	"	0.474	
1298	"	0.441	
1318A	"	0.428	
1367	"	0.357	
1368	"	0.359	
1371	"	0.339	
1400	"	0.498	
1401	"	0.365	
1402	"	0.546	
1437	"	0.463	
1474	"	0.773	
1479	"	0.453	
1310	"	0.520	
1386	"	0.558	
1440	"	0.677	

Thirteen medicinal oils of European origin were compared with the color scale and the results are summarized in Table 4. Five of the oils were very light colored but five others or 38% of the group did not comply with the suggested U. S. P. Color Standard No. 1. Of these two were not greatly darker than the standard. However, if the oils under consideration are typical of European oils

then the adoption of the proposed U. S. P. Standard No. 1 would prevent entry into the United States of about one-third of European medicinal oils.

In considering the color of cod liver oil it seemed pertinent to determine the influence of storage upon color. Under normal storage conditions care is taken to

TABLE 3

COLOR OF COD LIVER OIL

LAB. NO.	MEDICINAL (AMERICAN)	F.F.A. %	COLOR SCALE 1 2 3 4 5 6 7 8 9
829	"	0.561	
1247	"	0.684	
1271	"	0.653	
1288	"	1.050	
1316	"	0.519	
1342	"	0.477	
1376	"	0.442	
1408	"	0.572	
1409	"	0.590	
1411	"	0.576	
1423	"	0.566	
1452	"	0.660	

TABLE 4

COLOR OF COD LIVER OIL

LAB. NO.	MEDICINAL (EUROPEAN)	F.F.A. %	COLOR SCALE 1 2 3 4 5 6 7 8 9
1338	"	0.674	
1339	"	0.499	
1340	"	0.450	
1341	"	0.541	
1343	"	1.050	
1344	"	0.487	
1345	"	0.425	
1350	"	0.490	
1353	"	0.273	
1431	"	0.788	
1442	"	0.392	
1449	"	0.616	
1467	"	0.593	

TABLE 5

COLOR OF COD LIVER OIL

LAB. NO.	MEDICINAL OLD OILS (EUROPEAN)	F.F.A. %	COLOR SCALE 1 2 3 4 5 6 7 8 9
1126	"	0.996	
1459	"	0.936	
1460	"	0.924	
1461	"	1.168	
1462	"	0.868	
1463	"	1.092	
1464	"	1.238	
1465	"	0.928	

protect oil from the air and thus reduce possible atmospheric oxidation to a minimum but for the purpose of this test it seemed desirable to determine the colors of oils that had been subjected to rigorous storage conditions. Accordingly a series of European oils that had been stored under laboratory conditions in partially filled bottles for one to six years were tested. As will be noted on referring to Table 5

five or approximately 60% were found to be darker than the suggested U. S. P. Standard No. 1 but it should be noted that four of these are only slightly darker than the standard. In general these oils are very little darker than the fresh European oils discussed in Table 4. On the other hand the acid values are much higher, in fact in some instances the reported acid values which were recently determined, when the color tests were made, are twice as high as when the oils were placed in storage. From these data and those reported above it is evident that there is no close correlation between the acidity and color of cod liver oils.

From the foregoing results it appears that the proposed U. S. P. Standard No. 1 (color No. 5 of the scale used in this study) is a too rigorous specification for the maximum color of medicinal cod liver oil. On the other hand the proposed U. S. P. Standard No. 2 (color No. 9 of the scale used in this study) is an altogether too lenient specification. The adoption of the proposed U. S. P. Standard No. 2 would permit the marketing, for medicinal purposes, of cod liver oils which are decidedly darker than the majority of present-day medicinal oils. Hence the results obtained with the oils discussed above indicate that the official color standard for medicinal cod liver oil should be somewhat darker than the proposed U. S. P. Standard No. 1 but decidedly lighter than the suggested U. S. P. Standard No. 2.

SUMMARY.

The color of a series of over one hundred cod liver oils has been studied with apparatus designed for this purpose.

The permanency of the color of solutions of cobalt and iron chlorides suggested as U. S. P. color standards for cod liver oil has been determined and found satisfactory.

In a series of 54 crude cod liver oils the greater portion were found to be darker than the U. S. P. Standard No. 1. However, when some of these oils were chilled and pressed in the usual manufacture of medicinal oil the crude oils became more than enough lighter in color to comply with this standard.

Nearly all the American medicinal oils met the proposed U. S. P. Color Standard No. 1 but about one-third of the European oils were unsatisfactory as regards color. Old oils which had been stored under unfavorable conditions were nearly as light colored as fresh oils of similar origin. However, the acid content of the old oils greatly exceeded that of the fresh oils.

While there is a tendency for dark colored oils to have high acid values and light colored oils to have low acid values there was no consistent correlation between acid value and color of the oils studied.

The proposed U. S. P. standards for color represent a definite advance in the standardization of the color of medicinal cod liver oil. However, the results obtained in this investigation indicate that the official color standard for medicinal cod liver oil should be darker than the proposed U. S. P. Standard No. 1 but decidedly lighter colored than the suggested U. S. P. Standard No. 2.

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AMARANTH AS A SUBSTITUTE FOR CUDBEAR WITH IMPROVED METHODS IN THE PREPARATION OF SOME N. F. GALENICALS.*

BY S. W. MORRISON.

In the past, cudbear has been the favored coloring agent for pharmaceutical preparations because it is of vegetable origin, reasonably cheap and compatible with most substances. It is not, however, the ideal agent as it is variable in color, it hinders filtration; the color changes in acid and alkaline solutions and the color fades.

In seeking to find a more desirable coloring agent, amaranth was tried. Amaranth is a synthetic organic dye which has been in use for many years and in 1906

* Section on Practical Pharmacy and Dispensing, A. PH. A., Madison meeting, 1933.

was accepted by the Department of Agriculture for meeting the requirements of the Pure Food and Drugs Act.

It has been reported by H. Fühner in the "Handbuch of Experimental Pharmakologie," 1 (1923), 1199, to be inert physiologically. Four-gram doses were administered repeatedly to dogs with no effect. The urine was not colored by the dye when given orally but did show some color when amaranth was given intravenously. Intravenous injections produced no effect on the dogs.

Amaranth has many advantages over cudbear. It is a definite chemical compound which is never variable in color, it does not slow the filtration of solutions in which it is used and is cheaper than cudbear. It is readily obtainable through the wholesale drug or chemical companies in 10-Gm. bottles at 50 cents or in larger packages at $7.60 a pound. The cost of amaranth required for coloring is only one-half as much as the cost of cudbear for the same preparation. Amaranth is permanent in color under ordinary conditions and does not change color in weak acid or alkaline solutions. For convenience and greater accuracy in handling amaranth, a 1% solution in 15% alcohol was used. The solution is stable under ordinary conditions and keeps indefinitely.

The directions for the manufacture of Alkaline Aromatic Solution, N. F. have given some trouble, due to the cudbear in the formula. The powdered cudbear, when added to the solution as directed, hinders the filtration tremendously. The cudbear itself has been found to vary greatly in quality and color. The use of Tincture of Cudbear in place of the powdered form would be a great improvement. The solution was prepared according to the N. F. V directions except that no cudbear was used and only 3.5 Gm. of magnesium carbonate was used for clarification. Four cc. of 1% solution of amaranth was added and sufficient distilled water to make one liter. The solution was then filtered. Filtration was rapid and a crystal clear solution was obtained. The amaranth gives a brilliant red color while the cudbear produces a less desirable bluish red color.

COMPOUND ELIXIR OF PEPSIN, N. F. V.

The present formula and directions for the manufacture of Compound Elixir of Pepsin are unsatisfactory. Cudbear hinders filtration and the high percentage of glycerin in the elixir, likewise, lengthens the time required for filtration.

The following changes in the formula are recommended:

> Dissolve the pepsin and lactic acid in 500 cc. of distilled water. Dissolve the oil of orange in the alcohol and add 4 cc. of 1% amaranth solution. Mix with the pepsin solution and filter. The solution filters very quickly. Add the glycerin to the clear filtrate and sufficient distilled water to make one liter of elixir. Mix.

This method eliminates the two-hour delay necessary when cudbear is used. The solution will remain clear after adding the glycerin and the entire elixir may be completed in a very short time.

ELIXIR OF THREE BROMIDES, N. F. V.

The chief difficulty in the manufacture of this elixir has been due to the cudbear. It has hindered filtration, and some cudbear on the market often imparts only a light pink color to the elixir when made according to the N. F. V directions.

It is apparent that the amount of cudbear must be increased or else the tincture of cudbear should be substituted.

Amaranth was used in place of cudbear and eliminated all the difficulties. The elixir was prepared as directed in the N. F. V except that 4 cc. of the 1% solution of amaranth was substituted for the cudbear and the elixir was filtered immediately. Filtration was rapid, there was no delay, due to extraction of color and the color was always uniform and free from the less desirable bluish red color.

Red Aromatic Elixir, mouth wash and Compound Syrup of Phosphates may likewise be made with amaranth in place of cudbear or fuchsin. The use of amaranth might also eliminate the use of cochineal solution and carmine solution.

There has been some doubt concerning the permanency of amaranth. To determine the stability of the color, alkaline, neutral and acid solutions were prepared. Alkaline Aromatic Solution, N. F. V was made with cudbear as directed and another portion was made with amaranth. Likewise, Elixir of Three Bromides, N. F. V and Compound Elixir of Pepsin N. F. V were prepared with both cudbear and amaranth. Mouth wash, N. F. V was also made and colored with amaranth.

The degree and intensity of color of each preparation was determined by comparison with colored glass slides using the Lovibond tintometer. In order to match the color of the cudbear in alkaline solutions it was necessary to use a dilute solution of indigocarmine with the colored glass slides.

The galenicals were then placed in 3 fl.-oz. flint glass, tightly stoppered bottles, and placed on a shelf near a south window where they were kept for 5 months exposed to bright diffused light.

After standing 5 months, the intensity of color of each galenical was determined again with the tintometer.

The solutions were then placed in direct sunlight where they were exposed to the intense sunlight for 22 hours during the period of June 1st–16th, and only at midday. After this severe test the colors were again checked on the tintometer.

The following table gives the results of the experiment.

DEGREES OF COLOR WITH THE TINTOMETER.

	Thickness of Cell.	At Time of Mfg. 1/6/33.	5 Mo. in Bright Diffused Light. 6/5/33.		22 Hrs. Direct Sun-Light. 6/20/33.		% Loss of Color after Entire Exp.
Liq. Arom. Alk. with amaranth	1/16″	2.2		2.0	1/8″	3.6	18%
Elix. Brom. Tri with amaranth made 12/20/32	1/16″	2.0	1/8″	4.0	1/8″	4.0	None
Elix. Brom. Tri with amaranth made 1/6/33	1/16″	1.6	1/8″	3.2	1/8″	3.2	None
Elix. Pepsin Co. with amaranth made 12/12/32	1/8″	1.2	1/4″	2.5	1/4″	2.3	8%
Elix. Pepsin. Co. with amaranth made 1/5/33	1/16″	8.0	1/16″	7.6	1/16″	7.0	12.5%
Elix. Pepsin. Co. with amaranth made 1/6/33	1/16″	5.0	1/16″	4.6	1/16″	3.5	31%
Liq. Arom. Alk. with cudbear made 12/20/32	1/16″	5.0	1/8″	3.2	1/4″	2.6	86%
Elix. Brom. Tri with cudbear	1/2″	4.6	1/2″	3.0	Changed to orange		Approx. 40%

Elix. Pepsin Co. with cubear made 12/20/32	1/8"	2.3	1/4"	3.0	1/4"	2.4	48%
Elix. Pepsin. Co. with cudbear made 1/5/33	1/16"	2.6	1/16"	2.4	1/8"	4.0	24%
Elix. Pepsin. Co. with cudbear made 1/6/33	1/8"	2.2	1/8"	2.2	1/4"	3.0	31%
Lavat. Ori with amaranth	1/8"	1.5	1/8"	1.5	Changed to orange		

In no case did the preparations colored with amaranth show any loss of color after standing 5 months exposed to bright light. Those colored with cudbear did show a loss of color.

After exposure to direct sunlight, Compound Elixir of Pepsin colored with amaranth (an acid solution) showed a slight degree of fading (8–31%), but practically none in the alkaline solutions (0–18%). Amaranth is most stable in the alkaline solutions.

The cudbear faded considerably more than the amaranth and is more stable in the acid solutions than in alkaline. Loss of color in acid solution was 24–48% while in the alkaline solutions the per cent loss of color was 40–86%.

In preparations lightly colored with amaranth the fading is apparently more rapid than when amaranth is present in greater amounts. The amaranth tends to change to an orange-red color on exposure to direct sunlight, but there is no change under ordinary conditions. The mouth wash showed the greatest change in color but only after exposure to direct sunlight.

There may be some restrictions on the use of amaranth in certain states, because it is a so-called coal-tar dye but those pharmacists who are permitted to use it will find amaranth a great improvement in the manufacture of the galenicals discussed.

UNIVERSITY OF ILLINOIS,
COLLEGE OF PHARMACY.

SOME USEFUL PRESCRIPTIONS FOR THE DENTAL PROFESSION.*

BY A. O. MICKELSEN.[1]

The professional rating of pharmacy is maintained and advanced through unceasing efforts in research, education and practice of professional pharmacy in the retail field. Because merchandizing occupies such an important part in maintaining the business, the struggle to advance pharmacy on a high professional plane is no small task. It is so easy to shift the technical professional work to a few who see the advantage of professional business and accept instead just the selling of professional products. This should be discouraged. Compounding of prescriptions and useful formulas must be retained in the average retail store if pharmacy is to advance or maintain its professional rating. The following quotation may well apply to the practice of professional pharmacy: "In a country rich in gold observant wayfarers may find nuggets on their path, but only systematic mining can provide the currency of nations." (F. Gowland Hopkins.) Applying the

* Section on Practical Pharmacy and Dispensing, A. PH. A., Madison meeting, 1933.

[1] Dean, School of Pharmacy, North Pacific College of Oregon, Portland, Oregon.

quotation to the practice of professional pharmacy—in a country rich in medical service, physicians and dentists may write original prescriptions now and then, making the pharmacist feel professional, but only systematic training, constant professional efforts and detailing the physicians and dentists for their original prescriptions can maintain pharmacy as a profession. The professional services which may be rendered by pharmacists are far reaching and not restricted to physicians alone. Modern dentistry has brought to light a need for the professional services of the pharmacist which should not be overlooked. A closer professional relationship is necessary between the physicians, dentists and pharmacists to bring about the most effective needs of humanity and eliminate self-medication as far a possible.

In the June number, 1933, of the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION appears my article on "Detailing the Dentist for His Prescriptions." The purpose of this paper is to follow up the detail work and to suggest a few useful formulas which may be used by the dentist in his routine practice, or prescribed for his patients if continued treatment is necessary.

Following are a few suggested formulas, compiled especially for my dental pharmacy work at North Pacific College of Oregon:

Formula No. 1.

Hand Cream (Stearic Acid Type, Frederick Grill, North Pacific College of Oregon).

Stearic acid	40.00 Gm.
Lanolin (anhydrous)	2.00 Gm.
Triethanolamine	4.00 Gm.
Tincture of benzoin	0.75 cc.
Perfume *q. s.*	
Water	100.00 cc.

Melt the stearic acid on a water-bath, dissolve the triethanolamine in the water and heat to boiling, add this solution to the stearic acid, stirring constantly. Continue stirring until cool, then add the Tincture of Benzoin and perfume.

Alterations if desired:

(1) Rose water to replace water.
(2) Rose water and witch hazel to replace water.
(3) Small amount of glycerin to replace equal quantity of water.
(4) Oil of lavender is a desirable perfume.

This preparation furnishes an excellent emollient hand cream for office use.

Formula No. 2.

Hand Lotion.

Lanolin emulsion	20.00 cc.
Tincture of benzoin	7.50 cc.
Glycerin	120.00 cc.
Rose water	100.00 cc.

Add the rose water slowly with rapid stirring to the lanolin emulsion, then add the other ingredients in a similar manner. The lanolin emulsion is prepared as follows:

Lanolin	80.00 Gm.
Stearic acid	15.00 Gm.
Triethanolamine	5.00 Gm.
Water	200.00 cc.

Weigh the amount of triethanolamine and stearic acid and add to the water. Heat the mixture on a water-bath until the stearic acid is melted, resulting in a creamy soap solution. Add the lanolin and continue heating without stirring until the lanolin is melted, then stir intermittently until the emulsion has cooled. This may be retained as a stock emulsion.

It is most desirable for the dentist to maintain his hands in a soft condition as dental laboratory work has a tendency to keep the hands rough. This lotion is an excellent preparation to use after doing laboratory work.

Formula No. 3.

Mouth Wash.

Saccharin, soluble	0.10 Gm.
Fuchsin, basic	0.02 Gm.
Oil of cinnamon	0.25 cc.
Oil of peppermint	0.25 cc.
Oil of clove	0.50 cc.
Alcohol	300.00 cc.
Talc	10.00 Gm.
Distilled water *q. s.*	1000.00 cc.

Dissolve the saccharin in 10 cc. of water and the fuchsin and volatile oils in 250 cc. of alcohol; add slowly to the 700 cc. of water and filter through talc. Finally, add the remaining 50 cc. of alcohol to make 1000 cc. of finished product.

This is a non-medicated mouth rinse, colored and flavored. It may be diluted with 2–3 parts of water and used to rinse mouth, leaving a pleasant after-taste.

In preparing this mouth wash, my experience proves that Tincture of Cudbear is more desirable for coloring than basic fuchsin; this is also suggested by Assistant Dean Schicks.

Formula No. 4.

Neutral Antiseptic Powder.

Sodium chloride, powdered	30.00 Gm.
Sucrose (Powd.)	20.00 Gm.
Oil of cinnamon	0.25 cc.
Oil of clove	0.50 cc.
Oil of peppermint	0.25 cc.
M. Ft. Pulv.	

Sig.: Dissolve one-half teaspoonful in a half glass of diluted mouth wash (Formula No. 3) and use to rinse mouth. Salt solution is extensively used to cleanse mucous surfaces; to restrain hemorrhage, to remove pus and to soothe and protect inflamed areas. The above preparation is suitable for dental use.

Formula No. 5.

Liquor Sodæ Chlorinatæ Chirurgicalis U. S. P. X.

This useful preparation if diluted with 1 to 2 parts of diluted mouth wash (Formula No. 3) will mask the objectionable taste, but still be effective for immediate use. Hypochlorite solutions disinfect very rapidly, also having the power to dissolve necrotic tissue without attacking normal tissue; pus cells and dead material in the wound are softened and washed away. An excellent preparation for septic sores often found in the mouth.

Formula No. 6.

Alkaline Antiseptic Powder.

Potassium bicarbonate	30.00 Gm.
Sodium borate	30.00 Gm.
Thymol	0.50 Gm.
Eucalyptol	1.50 cc.
Methyl salicylate	1.00 cc.
M. Ft. Pulv.	

Sig.: Dissolve one-half teaspoonful in a glass of diluted mouth wash (Formula No. 3) and use to rinse mouth. The chief purpose of this solution is to reduce irritation; by virtue of the alkalinity the mucous is dissolved, thus cleansing the mucous membrane. Any acid present is neutralized, leaving the mouth in a suitable condition for continued medication.

Formula No. 7.

Acid Astringent Antiseptic Powder.

Boric acid	30.00 Gm.
Powdered alum	15.00 Gm.
Thymol	1.00 Gm.
Menthol	1.00 Gm.
M. Ft. Pulv.	

Sig.: Dissolve one-half teaspoonful in a half glass of diluted mouth wash (Formula No. 3) and use to rinse mouth. This powder may also be used in powder form. This preparation may accelerate healing of canker sores or other ulcerations in the mouth. In case of spongy and receding gums, or to prevent excessive hemorrhage during operation, this solution should be most helpful.

Formula No. 8.

Oxidizing Powder for Mouth Wash.

(Dean George C. Schicks.)

Sodium perborate	100.00 Gm.
Carmine No. 40	0.03 Gm.
Oil of cinnamon	2.00 cc.
M. Ft. Pulv.	
Dispense in a bottle.	

Sig.: Dissolve a half teaspoonful in one-half glass of diluted mouth wash (Formula No. 3) and rinse mouth. (Use fresh solution only.) The efficiency of this preparation is largely due to the slow liberation of hydrogen dioxide, and it may be used in powdered form or any concentration. In solution it liberates from 9% to 10% of oxygen. Sodium perborate is devoid of erosive action upon the teeth, therefore, it is suitable as a dentifrice. It is ant-acid and a mouth antiseptic. It is an effective treatment for Vincent infection.

Formula No. 9.

Tooth Powder.

Sodium perborate	60.00 Gm.
Sodium chloride, powdered	40.00 Gm.
Sodium benzoate	10.00 Gm.
Sodium bicarbonate	30.00 Gm.
Flavoring, sufficient.	
Mix and make a fine powder. Dispense in a bottle.	

Sig.: Use as a tooth powder.

This powder would be an excellent remedy for spongy and receding gums, and as a daily dentifrice during treatment of any infectious condition of the oral cavity. It is non-abrasive and devoid of erosive action upon the teeth.

Formula No. 10.

Compound Acetphenetidin Capsules.

Acetphenetidin	gr. xxx
Acetylsalicylic acid	gr. lx
Caffeine	gr. xii
Ft. Caps. No. xii.	

Sig.: One capsule every two hours to relieve pain.

It is needless to elaborate on the usefulness of this prescription after extraction or to relieve distress after sitting in the dental chair for an hour. The usual results are most satisfactory. It should only be used or prescribed by directed medication by the practitioner.

Formula No. 11.

Dental Polishing Paste.

Powdered pumice (fine)	45.00 Gm.
Powdered talc	15.00 Gm.
Carmine powder	0.01 Gm.
Massing fluid (about)	33.00 cc.
Flavoring mixture	0.75 cc.

The powders should be passed through a No. 80 sieve.

This paste is for professional use only. The mass should not be too soft; a small bottle of massing fluid should be furnished to maintain the proper consistency of the paste for office use.

Massing Fluid.

Gelatin	1.00 Gm.
Glycerin	90.00 cc.
Water	90.00 cc.
Saccharin	5 tablets

Flavoring Mixture.

Oil clove	3.00 cc.
Oil wintergreen	16.00 cc.
Oil peppermint	24.00 cc.
Oil cinnamon	0.10
Oil anise	1.00

This flavoring mixture is suitable either for tooth pastes or powders.

In summary—Formula No. 3 is a pleasant non-medicated mouth rinse when used as directed, or it serves to supply the practitioner with a vehicle which may be medicated. Five preparations have been suggested for this purpose, covering the average needs of the dental practitioner. The flavoring in each case masks the objectionable taste, leaving a pleasant after-taste in the patient's mouth. The powders may also be used directly in powder form to suit the needs of the practitioner.

1. Formula No. 4—Neutral antiseptic powder for cleansing mucous surfaces.
2. Formula No. 5—Chlorinated solution, antiseptic in action and dissolves necrotic tissue.
3. Formula No. 6—Alkaline in reaction, solvent for mucin, antiseptic and reduces irritation.
4. Formula No. 7—Slightly acid in reaction, antiseptic and allays hemorrhage.
5. Formula No. 8—A powder which liberates oxygen in solution, cleansing and antiseptic.

The foregoing formulas are intended for professional use only, to be used by the practitioner in his office, or prescribed by him for his patients.

AN HISTORICAL NOTE ON THE OFFICIAL ROSIN CERATES.*

BY JOSEPH W. ENGLAND, PH.M.

There are two rosin or resin cerates official—the Ceratum Resinæ, or Rosin Cerate of the present U. S. Pharmacopœia, sometimes called Basilicon Ointment, and the Ceratum Resinæ Compositum or Compound Rosin Cerate (Deshler's

* Presented to the Section on Historical Pharmacy, A. PH. A., Madison, Wis., August 1933.

Salve), formerly recognized by the U. S. Pharmacopœia, and now by the National Formulary.

"Rosin Cerate, or Basilicon Ointment, is much used as a gently stimulating and protective application to blistered surfaces, indolent ulcers, burns, scalds and chilblains. We have found no application more effectual in disposing the ulcers which follow burns to heal." (U. S. D., 1926, 316.)

"The Compound Rosin Cerate, or Deshler's Salve, is used for the same purposes as the Rosin Cerate, but is somewhat more stimulating." (N. S. D., 1916, 434.)

Both cerates have been in use for more than a century and a half.

It is interesting to note that the First Edition of the "First Pharmacopœia of the United States of America," published in 1778 ("First Century of the Philadelphia College of Pharmacy," 1922, 23, 10), recognized "Unguentum Basilicum Flavum," *Pharm. Edin.* No formula was given.

Apparently, the formula was that of the sixth edition of the Edinburgh Pharmacopœia published in 1756—the first issue prior to 1778, the date of issuance of the First Edition of the "First Pharmacopœia of the United States of America," used in Revolutionary Days—as the third and fourth editions, and probably the fifth, did not contain any formula for Unguentum Basilicum *Flavum*.

Dr. W. B. McDaniel, 2nd, Librarian of the College of Physicians, of Philadelphia, advises me (under date of July 28, 1933) that:

"Bell & Redwood's Progress of Pharmacy in Great Britain (1880, pages 30, 31) gives the following notice of the editions of the Edinburgh Pharmacopœia: 1699—1st ed., 1722—2nd ed., 1735—3rd ed., 1744—4th ed., 1756—6th ed., etc., to 1841. So, our 1735 edition, in claiming to be the third (wherein you found the formula) seems to be correct."

In the Library of the College of Physicians of Philadelphia, there is contained a copy of the 3rd edition of this work published in 1735; also a copy of the 6th edition of 1756. The 1735 edition recognized only Unguentum Basilicon, and the 1756 edition recognized Unguentum Basilicum, Unguentum Basilicum Flavum and Unguentum Basilicum Nigrum.

Through the courtesy of the College of Physicians of Philadelphia, the following formulas from the Edinburgh Pharmacopœia are here given:

UNGUENTUM BASILICON.

℞ Ceræ flavæ
Sevi hircini
Resinæ albæ
Picis siccæ navalis
Terbinthinæ Venetæ, ana semilibram
Ol. olivarum libras duas cum semisse

(Directions for making the ointment are given, in the formula, in Latin. J. W. E.)

(From *Edin. Pharm.*, 3rd Edition, 1735, 134.)

UNGUENTUM BASILICUM FLAVUM.

℞ Ceræ flavæ libram unam
Resinæ albæ sesquilibram
Olei olivarum libra una
Terebenthinæ Venetæ semilibram

(Directions for making the ointment are given, in the formula, in Latin. J. W. E.)

(From *Edin. Pharm.*, 6th Edition, 1756, 133.)

UNGUENTUM BASILICUM NIGRUM.

℞ Ceræ flavæ
Resinæ albæ
Sevi ovilli
Picis liquidæ ana semilibram
Olei olivarum sesquilibram

(Directions for making the ointment are given in the formula, in Latin. J. W. E.)

(From *Edin. Pharm.*, 6th Edition, 1756, 134.)

The Library of the Philadelphia College of Pharmacy and Science contains the 4th edition of the Edinburgh Pharmacopœia published in 1744 (as well as the 6th edition published in 1756), and its formula for Unguentum Basilicon (page 125) is the same as that of the 3rd edition published in 1735.

Squire's Companion to the British Pharmacopœia (1916, 1155)—the latest edition published—gives the following formula for Unguentum Resinæ—Resin Ointment. N. O. Synonym Basilicon Ointment (Modified): Resin, in powder 13; Yellow Beeswax, 13; Olive Oil (by weight), 13; Prepared Lard, 11. (The proportions in B. P. 1898 read 4, 4, 4 and 3.)

Squire states, also (page 1155), that this ointment is recognized in the following foreign Pharmacopœias:

Official in Austrian (Unguentum Basilicum), Yellow Wax 16, Olive Oil 36, Colophonium 12, Suet 12, Turpentine 12, Pitch 12; Dutch (Unguentum Resinosum Flavum), Yellow Wax 18, Colophonium 8, Sesame Oil 70, Turpentine 4; French (Pommade de Styrax), Purified Liquid Storax 16, Colophonium 29, Purified Elemi 16, Yellow Wax 16, Olive Oil 23; German (Unguentum Basilicum), Arachis Oil 9, Yellow Wax 3, Colophonium 3, Suet 3, Turpentine 2; Mexican (Unguento Amarilla), Yellow Wax 6, Colophonium 5, Suet 4, Aceite 12; Norwegian (Unguentum Basilicum Nigrum), Colophonium 12, Yellow Wax 12, Pitch 12, Suet 12, Turpentine 12, Olive Oil 40; Portuguese (Unguento de Resina) Yellow Wax 25, Resin 25, Oleo de Amendoin 50; Spanish (Unguento de Altea), Turpentine 50, Althæa Root 100, Water 100, Yellow Wax 160, Pine Resin 160, Olive Oil 750; Swedish (Unguentum Terebinthinæ Resinosum), Colophonium 15, Suet 15, Turpentine 10, Yellow Wax 15, Olive Oil 45; Swiss (Unguentum Resinosum), Colophonium 9, Turpentine 9, Yellow Wax 17, Olive Oil 65; U. S. (Ceratum Resinæ), Rosin 35, Yellow Wax 15, Lard 50; also (Ceratum Resinæ Compositum), Rosin 225, Yellow Wax 225, Prepared Suet 300, Turpentine 115, Linseed Oil 135.

The official formulas for Resin (or Rosin[1]) Cerate, and Compound Resin (or Rosin[1]) Cerate since 1820 have been as follows:

Resin (or Rosin[1]) Cerate.

	U. S. P. 1820.	U. S. P. 1830.	U. S. P. 1840.	U. S. P. 1850.	U. S. P. 1860.	U. S. P. 1870.	U. S. P. 1880.	U. S. P. 1890.	U. S. P. 1900.	U. S. P. 1910.	U. S. P. 1920.
Resin	5	5	5	5	5	5	35	35	..	..	..
Yellow Wax	2	2	2	2	2	2	15	15	15	15	15
Lard	8	8	8	8	8	8	50	50	50	50	50
Rosin[1]	..	..	..	..	..	..	..	..	35	35	35

[1] The word Rosin is synonymous with Resin.

Compound Resin (or Rosin[1]) Cerate.

	U. S. P. 1820.	U. S. P. 1830.	U. S. P. 1840.	U. S. P. 1850.	U. S. P. 1860.	U. S. P. 1870.	U. S. P. 1880.	U. S. P. 1890.	U. S. P. 1900.	N. F. IV 1916.	N. F. V 1926.
Resin	16	16	16	16	12	12	..	..	..	..	..
Yellow Wax	16	16	16	16	12	12	..	..	22.5	22.5	22.5
Suet	16	16	16	16	12	12	..	..	30.0	30.0	30.0
Turpentine	8	8	8	8	6	6	..	..	11.5	11.5	11.5
Linseed Oil	8	8	8	8	7	7	..	..	13.5	13.5	13.5
Rosin[1]	..	..	..	..	..	..	..	..	22.5	22.5	22.5

[1] The word Rosin is synonymous with Resin.

There were no formulas for Compound Resin Cerate in N. F. I (1888), N. F. II (1896) and N. F. III (1906).

There is an ancient house on Market Square, in Germantown, Philadelphia—The Deshler—Washington—Morris House, built in 1772–1773 by David Deshler,

[1] The word Rosin is synonymous with Resin.

"who had come here from Heidelberg, where his father, whose wife was a sister of Casper and John Wister, was an aide-de-camp to the reigning Prince," states Rev. S. F. Hotchkins, M.A., in his admirable history of "Ancient and Modern Germantown, Mt. Airy and Chestnut Hill." (1189, 66.)

David Deshler was "in successful business in Philadelphia. . . . 'As honest as David Deshler' was an old saying. Mrs. Deshler bought a salve from a butcher, which was called 'Butcher's Salve' and afterward 'Deshler's Salve.' Dr. Wister put the recipe in his Pharmacopœia." So, apparently, Deshler's Salve was known as early as the American Revolution, and in all probability it was used in Germany and Europe long before.

Dr. Hotchkins writes, also, that:

"David Deshler dressed in olive-colored silk velvet, with knee buckles and silk stockings, bright silver buckles and the usual three-looped hat—a custom that well became his handsome face and manly form. His wife, Mary, was a granddaughter of Madam Mary Ferree, a French Huguenot widow, who owned much land in Pequea Valley, where a Huguenot settlement arose, favored by the Indian King, Tanawa. She died in Revolutionary Days, but David, her husband, lived until 1792."[1]

The Deshler Family of Germantown should not be confused with the Deshler Drug Store in New Brunswick, described by Dr. F. B. Kilmer in the JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION of July 1929. Dr. Kilmer writes me:

"So far as I know this man and his store had no connection with Deshler's Salve, although among the laity and the druggists of New Brunswick they have erroneously been joined together. Of course, I am familiar with this Salve; I have made and dispensed it, but so far as I know the David Deshler of whom you speak was not in any way connected with the New Brunswick druggist."

BINDING UP A WOUND.*

BY FRED B. KILMER.

When the dawn man swung from limb to limb in the primeval forest, crawled on all fours or walked upright, roamed in search of food and shelter, hunted, fished or fought his fellows, he got hurt. In every move man made he was beset with bruises, cuts, stabs, scratches, bites, blows, breaks—injuries of many kinds. The Stone Age brought axes, arrows, knives, lances, spears, clubs, hooks, tools and weapons of many sorts. The Bronze Age, closely followed by the Iron Age, which extends to the present, added to and amplified the implements which would injure and maim man's flesh. Every step in man's progress has brought new forms of injury; fire, the wheel, gunpowder, steam, the wagon, the engine, the machine, the motor, the aeroplane, electricity—and now in sight is radio power—atomic energy—all carrying elements for the mutilation of humankind. Wherever man may go, whatever he may do, he is prone to get hurt. In our highly civilized United

[1] Dr. James W. Wister, of Germantown, writes me (August 12, 1933) that: "All that you say concerning David Deshler I think is correct. Dr. Caspar Wistar, great nephew of John Wister, from whom I am descended, spelled both his names with an 'a.' The Doctor used the salve in his practice, but so far as I know, was not the author of a Pharmacopœia."

* Section on Historical Pharmacy, Madison meeting, 1933.

States upward of nine million accidents occur every year. Three million of them occur in the home.

When primal man was maimed, instinctively he sought out a way to care for his wounds. Out of this arose the healing art. The first physician was a man of magic. He dispelled demons and invoked angels with incantations, dances, rattles and the beating of drums. With his potions and lotions he applied charms and amulets. He made cures. Somewhere from twenty to a hundred thousand years ago in caring for his wounds he washed them with water and, in turn, arrested bleeding with compresses and ligatures. He preserved blood clots, a practice revived and renewed through the ages. He covered wounds with moss, leaves and plant fibres. He applied juices, decoctions, potions and lotions made from plants, poultices, fats, ointments, salves and cerates. He made plasters of pitch and gums spread on leaves and skins. He used wound-healing compounds made of ashes, balsams and animal excretions. With flint lancets he opened congested blood spots, abscesses, and drained away pus. With stone saws and knives he amputated limbs. After the invention of the bone needle, wounds were sutured with animal threads. The trephining operations of the Stone Ages would be a credit to the present-day practitioner. An interesting feature of primitive surgical customs is revealed in figures of human hands imprinted on the walls of the caves of France and Spain wherein one or more joints of the fingers have been cut off as a religious and superstitious practice. This custom was extended through the primitive people of many lands.

In the Bible the use of roller bandages in fractures is referred to. Among all ancient people wounds were dressed with "oil and wine" and balsams, and bound with bandages. This custom is conspicuously delineated in the parable of "The Good Samaritan." In the Talmud, sutures and bandages are referred to, together with the freshening of the edges of old wounds to secure more perfect union. Among the Hindus five to ten centuries before Christ surgical treatment attained a high point of development. Their manuscripts describe a variety of surgical implements and important operative procedures. They devised the bamboo splint centuries afterward adopted by the British Army. They were skilled in the use of bandages, and taught the art of bandaging by applying them to plants, fruits, stuffed leather bags and even dead animals. The student, at least, went through the motions.

The Chinese from a very early period formulated intricate systems of anatomy and physiology which they applied to the cure of disease. Religious tenets, however, forbade the shedding of blood and any cutting or mutilation of the body. However, they did apply plaster compounds spread upon silk, skins, paper and other fabrics to open wounds and injuries.

The Japanese, before they came in contact with European nations, followed the methods of China. It was not until the nineteenth century that the modern period of medicine and surgery began in Japan.

Ancient Egypt reached to high attainments in the arts only to meet with a lamentable decline. The healing art was controlled by the priesthood and was guided by magic. Disease was a kind of demoniac possession. Injuries to the body were caused by agents from the invisible world. Methods of treatment, even to the care for wounds, were carried out through charms and incantations to which were added material measures and remedies. Practitioners were

highly specialized, each confining his attention to one disease or one part of the body. The physician who treated a cough could not be consulted in a backache. The man who treated a cut finger would not care for a cut nose.

Through the embalmer's art came a knowledge of anatomy. Translators have agreed that certain terms found in the records can be used interchangeably and made to mean "embalmer," "physician" or "surgeon." The Egyptian surgeon never cut through the unbroken skin. The initial incision even in venesection was performed by an embalmer who was thereby held in contempt.

The wound dressings of the Egyptians were quite extended and varied. In their use of substances which were antiseptic in action they antedated the practices hailed as discoveries in the nineteenth century. The bandages and wound dressing materials of the Egyptians were made of linen, animal skins, papyrus (paper-like tissue) and the membranous omentum tissue of animals.

The various substances applied to wounds by the Egyptians included resins, balsams and gums, especially those from coniferous trees; oils of juniper and cedar; the ground wood of aromatic trees; powdered cassia, olibanum and myrrh; clays and the mud of the Nile (anticipating the later antiphlogistines); bitumen (the asphaltum of the Dead Sea)—the predecessor of the coal-tar products; dried lichens, including moss grown on the human skull. Resins, waxes and bitumen were at times applied boiling hot (cauterization).

From the embalmers came the art of bandaging and suturing (linen cord). Examination of mummies reveals their knowledge of many forms of bandages in use to-day. These include the circular, the figure of eight, the spiral, the "puttee" leg bandage, "finger cots." They covered wounds and packed them with pads of cloth and bundled cords. They filled them with resinous antiseptics like pastes and drained them. Bed sores were dressed with resin cerates spread on gargoyle's skin. Gold and silver plates were placed on wounds. This was a forerunner of our present-day application of gold and silver foil. For fractures, splints and stucco bandages were applied as supports. These latter were the equivalent of our present plaster of Paris splints.

Among the "lost Arts" attributed to the Egyptians may be classed some of their methods of applying surgical dressings.

In the "Iliad" of Homer we learn that warriors and, in some instances, women had a knowledge of wound treatment. The methods were simple, and evidently effectual. The effused blood was pressed out; the surface was washed with warm water; crushed roots or bruised leaves having styptic action were applied to check hemorrhage. Finally, emollients were applied and the part was bandaged. The surgical practice of the time is revealed in Hippocrates' "On Wounds, Fractures, Dislocations and Ulcers." Strenuous wrestling and athletic games provided ample practice in fractures, dislocations, sprains and strains. Slings, splints and bandages were used. Boiled water was used in cleansing. The importance of primary wound healing was known. Wounds were drained, and dry dressings were applied. Fomentations, poultices, washes, oils, cerates, ointments, liniments and plasters were employed.

In the passing of the centuries between Hippocrates and the dawn of the Christian Era Greek influence waned and became submerged in the Roman. We gain pictures of the medicine and surgery of the time through such writers as Cel-

sus, the voluminous encyclopedist who lived in the time of Tiberius Cæsar in the first century after Christ. In the second century A.D. came the immortal Galen, apothecary-physician who wrote five hundred treatises and whose influence held in the world of medicine almost if not quite to our time. Among the Byzantine scholars of the period was Paulus Eginata, who lived in the seventh century A.D. Eginata was a surgeon and wrote accurately and with originality.

Surgery in Galen's time was medical. While the physician might care for an injury already present, he would not cut or incise. In this era and for centuries following, hemorrhage was checked by compression, and styptics, roasted resin flour and gypsum were applied. In aneurysm ligatures of thread and catgut were used. Tumors and cancerous growths were excised. Dressings were made of lint, used dry or wet with vinegar or wine, and changed frequently. This age and those which followed must have kept the apothecary busy in preparing plaster applications. The books enumerate many hundred formulas running from the lead and oil compounds—our diachylon mass—through innumerable mixtures; adhesive, vulnerary, desiccative, cicatrizing, emollient, anodyne, discutient, epispastic and suppurative plasters of countless sorts and kinds—to which were added poultices, oils, ointments, cerates, lotions and liniments.

With the rise of Arab power the works of the Greek fathers were translated and revised. The followers of Islam carried a knowledge of medicine, surgery and wound dressing to the remote parts of the known world. They introduced Eastern forms of bandages and dressings and the materials for their elaboration.

When Constantine placed the cross upon his banner—medicine—the Roman domination of the world of science, art, literature and trade waned. Medicine, surgery and wound treatment became Christianized. The monks practised medicine as a work of piety and charity, but ruled out surgery as a heathen art. They did, however, follow most faithfully the "Good Samaritan." They sought out the ill and injured, poured "oil and wine" over their wounds and carried them to the "Inn" of the parable, which was found at the gate of every monastery. This was the hospital of these ages. The nuns taught and practised the care of the ill and injured, as trained nurses do to-day. They prepared bandages and dressing material for the wrapping of wounds, and supplied the crusading armies with outfits for the care of wounds and injuries on the battle-field—the forerunners of the modern first-aid packets and cabinets.

During the so-called "Dark Ages" medicine passed into the monasteries. Surgery was forbidden to the priests. Blood-letting, surgery and wound dressing were relegated to the "barbers." For many centuries practitioners of medicine held that surgical procedures were beneath them. They were forbidden to "soil their hands" in wound treatment. It is to the credit of the barbers that they created a class of "barber surgeons," some of whom reached to high attainment in the surgical art.

The passing centuries produced at intervals surgeons whose work is notable. At times there is seen dimly the foundation of the subsequent discoveries upon which modern surgery has been builded. In this period came Paracelsus, at one time a teacher of surgery at Basle. In the treatment of wounds he aimed at aiding, not combating, nature. To prevent putrefaction he applied substances which were essentially antiseptic.

Outstanding is the famous Ambroise Paré, the author of the classical exclamation, "I dress the wound, God heals it." He discarded the hot iron and boiling oil cauteries. He propounded the idea that pure air was beneficial in wound healing; that the impurities in the air were the source of putrefaction. This he combated with substances which were antiseptic.

Francis Arcaeus (1574) washed his wounds with alcohol, wine and myrrh, and introduced systematic drainage. From his efforts arose the "balsam of Arcaeus" composed of suet, lard, resin and turpentine, applied on lint, an antiseptic dressing which remained for centuries.

A Holland scientist, Leewenhock (1675), saw dimly but unmistakably the microscopic bodies which we now know as bacteria, and laid the foundation upon which modern practice has been built.

A year later Robert Boyle announced his discovery of the nature of fermentations and propounded prophecies as to the subsequent advances in wound treatment.

A notable event in the history of wound treatment is revealed in the work of Sir John Coltbach (1698), who in theory and practice anticipated the modern era. He used an antiseptic powder and devised that which would now be termed a typical aseptic course. Unfortunately, he kept the composition of his antiseptic a secret, and thereby became subject to the condemnation of his colleagues.

Among the practices of the seventeenth century was the "sympathetic" treatment of wounds. Here the wound itself was washed with water and covered with a linen bandage. But to the weapon which had caused the wound a healing "sympathetic" compound was applied. Paracelsus originated a "weapon salve." Digby's "sympathetic powder" became famous.

The eighteenth century produced no marked advancement in the evolution of surgical dressings. Sporadically antiseptic substances for application to wounds were suggested, but were not generally accepted. Among these were sulphurous and lead lotions. In 1765 Pringle called attention to the use of cinchona bark as possessing the power of preventing wound putrefaction. This was later confirmed by several investigators and its use was carried down almost to our time.

It has been stated that medicine and surgery, including the art of wound treatment, "made more progress in the nineteenth century than in all the centuries preceding." It was in this century that the microbes which were the cause of disease, wound inflammation and suppuration were caught and convicted. The journey which led to the surgical revolution of this century was a long one. Finally, Pasteur showed that the fermentation of wine and beer was due to living organisms. The idea that suppuration in wounds and infective diseases were due to the same cause naturally followed. Out of this was born a new method of dressing and treating wounds—a new surgery.

(To be continued)

GIFTS OF THE GODS TO PRIMITIVE MAN.

BY JOHN THOMAS LLOYD.

It has been said that every vegetable drug in our materia medica was first used in medicine by the aborigines. Perhaps such a statement is too all-embracing,

possibly a few were left for the white man to discover. But certainly in the New World, at least, the native people knew and employed as medicine the greater number of the indigenous drugs that are known to the white man to-day. But how, it may be asked, did the primitive and ignorant red men come into possession of such broad knowledge of the medical flora; and why, if they knew so many drugs, do we not have greater knowledge of their manner of employing them? In tracing an American drug to its first records, why do we usually find the bare statement that "it was first used by the Indians," with no explanation as to whether it was used as powder, infusion or decoction, strong or weak? Why were their pharmaceutical methods, necessarily primitive, not more frequently recorded?

In the *National Eclectic Quarterly*, September 1921, my opinion was expressed regarding the probable manner in which the Indian gained much of his knowledge of medicinal plants. I will here briefly remind the reader that the white man's systematic knowledge of medicine, since the days when he relied more upon pure sorcery and witchcraft than upon observation of drug action, dates back but a few generations—or a few centuries at most. The Indian's knowledge, though often mixed with sorcery, was acquired through intimate association with Nature from the day of his earliest impressions to the day of his death. His very existence depended upon his knowledge, not only of what was good and palatable food in times of plenty, but more upon what roots and seeds could be eaten in times of scarcity. In trying all, as he must have done to carry him through times of famine, or to add variety to a monotonous diet, it is small wonder that he detected and came to recognize plants that produced unusual sensations or that relieved ailments from which he suffered.

Unfortunately for the preservation of records of the Indian's use of medicinal plants, his magic and therapeutics are often so intimately associated that it is impossible for us to separate the practices founded on true observation of results from those founded on pure superstition. Magic and medicine to him were almost or quite synonymous. In his language both are expressed by a single word—a word that differs but little from our own word, *prayer*. On this account it is a common inference that his ignorance is sufficient cause to disqualify the drug he used.

On our western desert, late summer dances with snakes and drums and grotesque masks may be serious petitions for the ending of drouth. In eastern forests singing medicine men with wolf-like masks may administer Podophyllum root from a plant that was approached from the east, encircled three times and finally red beads dropped in the holes from which the root was dug. Superstition this may seem to us, but to the Indian it is prayer to the Divine Power as serious as if the shaman chanted in an atmosphere of incense while robed in sacred vestments in place of animal masks and skins. If physic followed the administration of the Podophyllum it clearly indicated that the invading disease-causing demon was expelled by the ceremony, just as rain following the snake dance indicated that the gods were pleased and granted the appeal for moisture.

One can learn but little of the ways of the Indian without realizing that every act was interwoven with charm and fetish. The sowing of corn was preceded and accompanied by dance and ceremony lest the grain blast and wither. The gathering of the crop was accompanied by ceremony of thanks and rejoicing.

"Once when all the maize was planted,
Hiawatha, wise and thoughtful,
Spake and said to Minnehaha,
To his wife, the Laughing Water:
You shall bless tonight the corn-fields,
Draw a magic circle 'round them,
To protect them from destruction,
Blast of mildew, blight of insect."

While the hungry tribe looked on and waited, the first ears from the fire were ceremoniously sacrificed to the gods.

Even the personal doings of the Indian were governed by charms and magic. There were charms to turn arrows, charms to protect the traveler, charms for the safety of those left at home. For the Indian there were no natural laws to account for that which the brain could not comprehend. The sun, the stars, the earth, the waters, health, disease, famine—all were mysterious gods, or the gift of gods whose favor must be courted or wrath appeased, by the proper magic or medicine.

Probably it is fundamentally on account of the white settler's lack of sympathy and understanding of these Indian superstitions that so little of what he knew and did is now known. The early missionaries found the native ceremonies (strange mixtures of empirical learning and pure superstition) in conflict with their teachings, so drove them to seclusion. The less serious-minded trappers and traders often found the dances and rituals mirth-provoking. Quite naturally neither gained the confidence of the proud first Americans.

Even to-day there are men of science who question the worth of a medicine that originated with the ignorant and superstitious savages. These men seem to lose sight of the fact that the dance for rain comes in the late summer just before time for the desert to blossom, and the administration of Podophyllum accompanied the ceremony to drive away the demon of disease. "We must admit," says James Mooney, "that much of their practice is correct, however false the reasoning by which they have arrived at their results."

The dance to the gods was considered as important at seed-time as the planting itself. Yet do we say that corn is worthless? Has the white man with all his knowledge of plant breeding ever bred products of greater value than corn, potatoes, tobacco, beans, squash, pumpkin, peanuts, or has he induced plants to progress farther from their primitive ancestry than these plants have progressed under the influence of pagan superstition and worship?

If at first thought one believes the aborigines, without laboratory facilities and without technical training, could make no discovery that would stand the test of the modern physiological laboratory, let him consider the early uses of almost any of the vegetable drugs classed as habit-forming stimulants or narcotics. Nicotine, for example, occurs, with but one known exception, in plants of the genus *Nicotiana*. The exception is the Australian plant, *Duboisia Hopwoodii*. Curiously enough the leaves of *Duboisia* are chewed by the Australian natives in much the same way that tobacco is chewed by its addicts. Yet the effects of nicotine are so imperfectly understood that there is more than a little doubt in scientific circles as to whether it contributes any important part to the pleasure of the tobacco user.

Another example is the well-known water-soluble alkaloid, caffeine. Caffeine, as we all know, is a stimulant so mild that its exhilarating effects pass almost or

quite unnoticed. It cannot be detected by flavor for it is practically tasteless. Caffeine occurs in comparatively few plants, among which the best known are tea, coffee, cocoa, kola, maté and guarana. These plants are of dissimilar appearance and are native to widely separated parts of the earth, yet every one of them was independently discovered by primitive man, and those on the American continent, at least, are prepared by their discoverers with pagan rituals. Civilized man isolated the alkaloid, caffeine, thousands of years after primitive man discovered its source and uses.

Is one to believe that the savages subjected every plant to tests careful enough to disclose the mild effects of caffeine? Stupendous as such a task would prove, is it not difficult to understand by what other means the caffeine-bearing plants could have been discovered among the thousands of dissimilar forms of vegetation? And, is it not logical that the process which made them known would also reveal other plants with other medicinal qualities? Should even the most technically trained persons question the worth of any medicine solely because it was first employed by the savage? If this logic were applied to foods, what dishes would appear on our daily table?

Not only have native tribes discovered medicinal plants, but they have discovered even more remarkable manipulative processes which make useful qualities available, or hold in check qualities that are detrimental, or alter drug structures to develop qualities that are not present in the natural state. This is pharmacy of the highest order. It antedates pharmacy of the European civilized nations by untold centuries.

To illustrate we need but consider a few of the caffeine-bearing plants already mentioned. Of these, tea leaves undergo careful "curing," while coffee, guarana, cocoa and kola are subjected to roasting before they are fit for use. In addition to roasting, cocoa also undergoes a period of fermentation.

Tobacco likewise must be cured before there is the slightest suggestion of the aroma that has perfumed the atmosphere of all civilized countries since Sir Walter Raleigh smoked the Indian weed to the astonishment of Queen Elizabeth.

Coca, the plant from which cocaine is derived, has been so long under Indian cultivation that the wild plant from which it descended can no longer be determined. In using coca, lime is invariably mixed with the leaves. Under its alkaline influence the alkaloids of the plant are insoluble, which suggests doubt whether "coca chewers" are in reality "cocaine eaters."

Several of the plants named are among our most important economic products. Great industries in every civilized country are founded upon their production and distribution. Yet, in their natural state, they are absolutely unfit for use. There is nothing about them that could possibly indicate that aromas and flavors could be developed and their natures completely altered by processes of roasting or curing. Had the discovery of their hidden qualities and the pharmacy necessary to bring them out been left to the white man, it is doubtful whether one of them would to-day be of more than taxonomic botanical interest. The pharmacy of the aborigine discovered and developed hidden qualities of natural vegetable products just as his plant and animal breeding developed foods without which man would necessarily be dependent upon wild things for sustenance, and his crowded civilization would be impossible.

AN OPPORTUNITY AND A CHALLENGE TO PHARMACY EDUCATORS.*

BY HENRY J. GOECKEL.

The reports of the Committee on the Costs of Medical Care suggest that the public must choose between the socialization of medical care with its bureaucratic regimenting and inflexibility; or that private service must be developed to be more effective and more economical. The trend of the report is an accusation that the affective value of the service is not commensurate with the cost of the same.

Pharmacists may well be pleased with this report in its statement that as instituted "the services of the pharmacist are readily available to the public without unduly high cost for the prescribed medicines" and in the recommendation that "the preparation, standardization and distribution of drugs, medicines and medical supplies should be limited as far as possible to pharmacists who are prepared by education and training to render this responsible service and to protect the public against abuse."

As affecting pharmaceutical education we find:

1. That more stress should be placed on the pharmacists' responsibilities and opportunities for public service;
2. There are enough, if not more than enough colleges of pharmacy teaching undergraduate courses but there are very few giving graduate work;
3. The education should be more closely correlated with the education in other public health professions.

In the past years the member presenting this paper has introduced different phases of two fields for pharmaceutical endeavor sadly neglected by the profession in America—two phases which have much to do with meeting the issues raised by the report of the Committee on the Costs of Medical Care.

The first of these is "Hospital Pharmacy" which happily is on the road to correction by the recognition of the needs for adequate pharmacy service in the hospitals and by the inclusion of a clause to that effect in the standards set by the Council on Medical Education and Licensure, of the American Medical Association.

The second subject, that of clinical laboratory service, is now of more vital interest and importance than ever for the following reasons:

1. The days of the side-line expansion and diffusion of the upkeep or cost of pharmacy establishments has reached a point where it has not only ceased to be an aid to rendering of pharmaceutical service but has become much of a discredit and a detriment to the profession of pharmacy. Many of these activities now so overshadow true pharmacy as to be injurious to the public interests;
2. The recognition of pharmacy's place in the hospital group makes it imperative that our pharmacy faculties take steps to prepare pharmacists and pharmaceutically educated personnel capable of filling these positions efficiently;
3. The reorganization of pharmacy education to a full four-year undergraduate course puts the challenge to these faculties to shape graduate courses to meet the advances in pharmaco-medical practice in keeping with the times.

Many phases of this subject have been brought to the attention of the members of this ASSOCIATION during the past fifteen years.

* Section of Education and Legislation, A. PH. A., Madison meeting, 1933.

In 1919, a paper was read before this Section on "Pharmaceutical Education and Opportunities"[1] to focus attention upon the subject of clinical pathology and its relation to pharmacy. It endeavored to show that it is a branch of the medical arts and sciences which requires a greater chemical and pharmaceutical knowledge than is required for the practice of general medicine and surgery. That it should, therefore, be classed in the group with pharmacal medicine along with pharmacology and pharmacy proper, and should receive greater consideration by colleges of pharmacy giving advanced courses.

In 1921, before the Section on Practical Pharmacy and Dispensing, a paper was presented on "Clinical and Pathological Laboratories—Their Maintenance, Service Charges and Scope of Work."[2]

In 1925, a paper on "Combined Pharmacy and Clinical and Pathological Laboratory Education"[3] was presented before this Section. This reviewed and discussed the various combined courses for medical students and particularly discussed and questioned the value of the course combining pharmacy with medicine offered by the University of Michigan.[4] It also dwelt upon factors pertinent to the costs of medical care; the economic factor of the high cost of medical education and training in dollars as well as in the important socialogic factor of the many unproductive years of the physician's life, and it questioned the value of much that is crowded into the medical curriculum. The paper called attention to the loss to society if the so-called preclinical courses of the medical curriculum were further curtailed and the detrimental effect of this on the laboratory branches if no other arrangements are made to preserve these utilitarian subjects to society.

It pointed out that the pharmacy faculties in university schools are the logical ones to take the initiative to develop these branches. In contrast to the students of medical schools it will be found that the students who enter a first-class pharmacy school for the more extended courses are of a temperamental and mental type which makes for success in the tedious work which characterizes most laboratory activities.

Likewise, the grilling chemistry and related courses as given in the pharmacy school are more directly applicable for this type of work than are the very limited courses given to prepare medical students or the general chemistry of many universities. To properly qualify advanced pharmacy students to become expert in the clinical laboratory service requires careful planning and selection of courses.

The experimental physics courses for such students should be extensive. Where a comprehensive general biology course and an extended experimental pharmacology course are available, the anatomy and dissection courses of the medical school are not necessary as the laboratorian of this type does not need the regional precision in human anatomy required of the physician or by the surgeon.

The bacteriology should be developed in the pharmacy school, as a much more extended course should be given than is required in medical schools. The tendency in recent years has been to abridge the normal and pathological histology courses in the medical schools. For this reason and for the needs of pharmacological research

[1] H. J. Goeckel, JOUR. A. PH. A., 8 (1919), 930.
[2] H. J. Goeckel, *Ibid.*, 10 (1921), 182.
[3] H. J. Goeckel, *Ibid.*, 14 (1925), 48.
[4] Edward H. Kraus, *Ibid.*, 13 (1924), 353.

training it will be advisable for the schools of pharmacy to develop their own courses in these subjects. Much experimental animal histology and phases of drug action and toxicity can thereby be stressed. The general embryology in the general biology is ample because the pharmaceutically trained student is well versed in plant histology and plant embryology.

In the 1925 paper, the view was expressed that the clinical pathology course of the medical school would possibly be better than a course at the pharmacy school. My experience since then and the advancement in the pharmacy curriculum lead me to decidedly revise this view. The courses at the medical school are probably adequate for medical students but they are far from satisfactory to prepare laboratory experts. The subject will have to be developed by the pharmacy school and correlated with the courses in bacteriology, histology, pharmacology and physiological and organic chemistry.

Placing this branch of laboratory service in the pharmacal group and preparing a truly qualified group of laboratorians will tend to prevent the laboratories of our hospitals being used as a makeshift by physicians until the opportunity presents itself for them to enter general practice. This is one of the banes of the laboratory service, as comparatively few medical men take up the service with the serious intention of making it their life's work. The result is that they usually employ it as a stepping-stone and never thoroughly qualify or devote their attention to the work.

The greater part of this work is at present in the hands of mechanically trained technicians. Every community with two or three "real" physicians can support such a laboratory organization. By "real" physicians I mean the general practitioner who makes thorough and careful examinations of his regular patients and keeps careful cumulative histories on each one; in distinction to the type which I call a "Medicine Man." This will furnish the means for the "real" physician to get reliable aid to alter, to extend or to refute his tentative diagnostic conclusions, and also aid in checking up on case progress. It will place in each community a unit which many times furnishes the key to the physician in deciding whether or not to send the patient to a consultant, to a specialist or to a hospital.

It will greatly aid the medical profession to meet the challenge of socialized medical care with its roseate promises and its inherent evils.

As affecting the laboratory service:

It will place the service in a distinct class where it will not be subject to the abuse of being utilized as a mere stepping-stone to medical practice.

Through having thoroughly educated and trained expert laboratorians the service will be greatly improved and extended.

It will afford a better means of establishing efficient hospital service than is at present possible.

It will help to coördinate the medical, surgical, nursing and pharmacy service of the institutions.

This combined pharmacy and clinical laboratory education is one in which the subjects supplement and fortify each other and thereby greatly extend the value of the laboratory units.

As affecting pharmacy:

It is the one specialty which coördinates all other types of pharmacal service and is the only field giving direct sympathetic contact with the physicians.

It can be combined with professional pharmacy to pharmacy's and to the public's advantage as it will afford opportunities to detect the shortcomings of the pharmaceutical services.

It makes possible the maintenance of laboratories in smaller communities and enables these specially qualified pharmacists to take advantage of their analytical training in chemistry and in the other branches of the pharmacal field.

Such laboratories can at times take over the routine control analysis of smaller industrial establishments. Where it is combined with a pharmacy, this will often become a special purchasing unit of the industrial establishment thereby increasing the volume of business in rapid turnover items. It will often be the local health control unit thereby extending pharmacy's public health service capacity. Most physicians in the writer's service submit the diagnostic nose and throat swabs in suspected diphtheria cases to him and his associate and then send the release cultures to the State Laboratory.

This education and training will provide a more satisfactory group of pharmaceutical chemists for teaching and for manufacturing and for biological positions.

As specifically affecting the public:

It will improve and spread the laboratory service and by its coördinating effects it will improve medical and pharmacal service.

It will extend pharmacy's control right to the use of the medicaments

The writer is many times sought by and goes into conference with his medical clients in selecting the remedial measures to be employed in given cases. He is repeatedly requested by many physicians to criticize their therapeusis when the laboratory examinations indicate errors or abuse.

By this advance the pharmaceutical profession can pledge still greater advances in the value and quality of the pharmaceutical services beyond that disclosed by the very favorable report of the Committee on the Costs of Medical Care.

The challenge is up for the pharmaceutical faculties of America to make this come true.

ABSTRACT OF PAPER, SCIENTIFIC SECTION, A. PH. A.

"Two Species of the Genus Ledum," by Russell A. Cain and E. V. Lynn.—A preliminary study of *Ledum groenlandicum*, Oeder, having shown very interesting composition, a more extensive investigation was made of the leaves and of the flowers of this and of *L. columbianum* Pip. After a partial proximate analysis, during which the absence of alkaloids was noted, the volatile oils were more carefully examined. The fresh leaves of *L. groenlandicum* yielded 0.12 to 0.18 per cent of oil which was found to contain about: 25 per cent of *l*-borneol, partly as acetate; 25 per cent each of *l*-alpha-phellandrene, *l*-alpha-caryophyllene and ledum camphor; a smaller quantity of phenols, chiefly carvacrol; some free acetic acid and possibly other acids of higher molecular weight; probably some azulene. The fresh flowers gave 0.058 per cent of oil which had strikingly different constants. The fresh leaves of *L. columbianum* yielded 0.55 per cent of oil containing about: 3 per cent of *l*-apha-pinene; 15 per cent each of *l*-borneol, partly as acetate, ledum camphor and an unidentified terpene, probably *l*-beta-pinene; 10 per cent each of *d*-alpha-phellandrene, *l*-alpha-caryophyllene and columbenol, a stearoptene, probably $C_{15}H_{22}O$; a small amount of phenols, chiefly carvacrol; some free acetic acid and possibly traces of other acids of higher molecular weight; probably some azulene. The fresh flowers gave 0.59 per cent of oil with notably different constants.

Contrary to previous opinions, none of the overground portions of either plant was found to be poisonous to animals, even when given in enormous doses. No evidence could be found for the presence of arbutin, which had been claimed as a constituent of *L. groenlandicum*. The glucoside, ericolin, may be in the leaves of both species, as attested by hydrolysis to ledum camphor, but since no one has ever isolated the glucoside in a pure state from any vegetable source, one can conclude only that there is present in the species of *Ledum* a substance which hydrolyzes to ledum camphor.

THE DEPARTMENT OF THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

C. B. JORDAN—CHAIRMAN OF EXECUTIVE COMMITTEE, A. A. C. P., EDITOR OF THIS DEPARTMENT.

The following papers, "Why Organic Chemistry Should Be Taught in the School of Pharmacy" by Dr. C. J. Klemme, and "What the Department of Pharmacy Expects of the Department of Chemistry" by Dean H. C. Newton, are worthy of careful perusal by all teachers of pharmacy and pharmaceutical chemistry. The arguments that Dr. Klemme sets forth for the teaching of organic chemistry by an individual prepared in pharmacy are, to my mind, irrefutable provided, of course, the individual is a well-trained organic chemist and a good teacher. That the department of pharmacy should expect coöperation, sympathy and understanding of the problems of pharmacy by the department of chemistry is to be expected by all, and Dean Newton has summed it up very well in his conclusion which is found at the end of his paper.—C. B. JORDAN.

WHY ORGANIC CHEMISTRY SHOULD BE TAUGHT IN THE SCHOOL OF PHARMACY.

BY C. J. KLEMME.

The subject of this paper has been limited to the question of teaching organic chemistry in the school of pharmacy because, although the same question might arise in connection with other branches of chemistry, organic chemistry seems to be more vitally linked with the substances composing our materia media.

The department in which organic chemistry is taught and the type of course given in the various schools of pharmacy depend upon several factors, among which we might consider, as the most important, the attitude of the school authorities and the physical structure of the school. However, the discussion in this paper will be limited to reasons for advocating the instruction of organic chemistry as an integral part of the work done by the school of pharmacy and not that of an extraneous department.

It is true that the fundamental principles of organic chemistry are the same in any course on that subject, but any teacher dealing with this course knows that certain phases may be stressed or slighted according to the needs of the student. It is obvious that the needs of students in pharmacy, chemical engineering, home economics and chemistry as a major differ to a considerable extent. The chemical engineer is interested only in fundamental principles and their applications and not specific details of any particular class or classes of chemicals, for he knows not what field of endeavor he will encounter upon graduation. The home economics student is interested primarily in food stuffs, textiles and perhaps dyes to a limited extent. The student majoring in chemistry requires a knowledge of reaction mechanism, atomic and molecular structure, and the application of physico-chemical methods to the synthesis and analysis of compounds. The pharmacy student must concern himself with not only the fundamental principles of organic chemistry in general but also the properties of specific classes of substances with which he will come in contact during his career.

It might be well to point out a few examples of phases in organic chemistry which, the author feels, the pharmacy student should be taught, and which are not given sufficient weight in what we might call a general course.

The U. S. P. directs that "ether to be used for anesthesia must be preserved only in small, well-closed containers, and is not to be used for this purpose, if the original container has been opened longer than twenty-four hours." No reason is given for this caution, but if an instructor in organic chemistry discusses the formation of peroxides along with possible effects of these substances, the reason for such strict caution is immediately explained.

The U. S. P. states that "chloroform contains not less than 99% and not more than 99.5% of $CHCl_3$, the remainder consisting of alcohol." Why the presence of the alcohol? Why not some other substance? Is the alcohol an impurity or does it have a purpose? In the discussion of chloroform in the chemistry class, the instructor should explain the decomposition of chloroform into HCl and phosgene, and tell of the use of ethanol as a negative catalyst in this decomposition. The same explanation would apply to the use of methanol in formaldehyde to prevent polymerization. He should also tell why chloroform to be used for anesthesia is prepared from chloral and not by other methods.

In a general course in organic chemistry, the modern synthetic medicinals receive but scant attention. Due to the increasing use and value of these drugs, a pharmacy student should acquire a fairly comprehensive knowledge of their preparation and properties. The least that could be done in any course is to outline the method or methods by which some of these compounds are actually prepared instead of giving a purely theoretical method, which, when put into practice, affords a very small yield. A particular case along this line is that of phenylbarbital.

Of considerable interest to the student in pharmacy is the relationship between chemical structure and pharmacological action. We must admit that knowledge along this phase of the work is meager in the extreme and yet there are some very interesting points in this relationship which might well be brought to the attention of the student.

Alkaloids are passed over in a general course usually with an inadequate definition and a statement to the effect that they are rather heterogeneous and complicated. Yet to the pharmacist, these are tremendously important substances. Glycosides might be similarly cited. When the pharmacy student has not received adequate instruction in the glycosides, he finds himself at some loss in the study of materia medica where he discovers that so many drugs contain one or more glycosides as active principles.

There are other special classes of substances we might mention, such as the dyes and stains, volatile oils, waxes, etc., which do not receive the attention that should be given to them by a student of pharmacy when he takes a general course. The reason is natural and obvious. Many of these substances are not members of the great classical groups of organic compounds, but come under general headings of compounds containing two or more functional groups. The chemical engineer, the home economics student and the biology student are not seriously concerned with them, but to the pharmacist these substances constitute a group with which he should have more than a nodding acquaintance.

The author has been able to follow the progress of pharmacy students under both systems of teaching organic chemistry and it is his firm belief that wherever the physical set-up makes it possible in a university, organic chemistry should be

taught to the pharmacy student in the school of pharmacy and by an instructor who has graduated in pharmacy. Such an individual is in a position to know the exact needs of the student and can supply those needs to the furtherance and betterment of the student's education.

WHAT THE DEPARTMENT OF PHARMACY EXPECTS OF THE DEPARTMENT OF CHEMISTRY.

BY HOWARD C. NEWTON.*

"Blessed is he who expects nothing
for he shall never be disappointed."

It must have been these words of Alexander Pope, written in 1727 in a letter to Gay, which inspired the answer of my friend, a teacher of Pharmacy, to my question, "What do you expect of the Chemistry Department?" He replied, pessimistically, "I expect nothing, so that anything I get will be better than I expected." However, this is not the unanimous answer to the question. Far from it. Another Pharmacy teacher replied, "I expect much of our Department of Chemistry and it always more than meets my expectations." Thus we find the two extremes and doubtless the true answer lies between them.

Realizing the difficulty in obtaining an accurate consensus of opinion on the subject of this paper, I decided to render my own opinion on it and, thereby, provide material for criticism and discussion in this Conference. In order that you may "read between the lines" more readily, I will state that my opinion is based on some twenty years of experience in Departments of Pharmacy, several of these years in an executive capacity, and on a recent study which I have made in the field of pharmaceutical curriculum construction. I am bringing to you who are teachers of Chemistry, therefore, the opinion of one who lives on the pharmaceutical side of the fence, if there is a fence between the two departments (which I doubt).

The expectations of the Pharmacy Department with respect to the Department of Chemistry, may be classified in two divisions—those which are more general and might apply properly between any two departments, and those which are specifically applicable to these particular departments of our discussion. I shall speak of the general expectations first.

The Department of Pharmacy, first of all, expects the Department of Chemistry to coöperate actively with it in doing everything possible for the present and future welfare of the student who is being educated and trained for the practice of some phase of Pharmacy. I purposely emphasize the welfare of the individual student—the individual Pharmacy student, because his interest should be the paramount interest of the two departments. His success in his chosen work is perhaps an approximate measure of the quality of the instruction he receives.

When a student enrolls in a college of Pharmacy, he does so, I believe, with the feeling that his curriculum is one that has been carefully constructed and coordinated for the purpose of preparing him for the practice of pharmacy. He has no reason to suspect that any department with which he comes in contact in his

* Creighton University, Omaha, Nebr., 1933.

training shall consider him as a necessary nuisance. Nor does he anticipate that a department shall consider his application of its subject to Pharmacy any less inspiring, any less dignified, and less contributive to the public well-being, than the same subject as applied by students in Engineering, in Dentistry or in Medicine. To him there are no barriers between departments; they are all working together to educate and train him to become a successful pharmacist. The college catalogs and bulletins support him in this belief. And this is as it should be. However, this fine assumption will be dispelled very quickly unless there is active coöperation between departments.

A sympathetic consideration of the chemical problems of the pharmacy student, an inculcation of respect for the pharmaceutical applications of Chemistry, an evident recognition of the close relationship of Chemistry and Pharmacy—these constitute an important part of what I mean by active coöperation between the two departments.

In the matter of character training, the Department of Chemistry is in a strategic position. In the curricula of nearly all of the colleges, more time is devoted to laboratory work in Chemistry during the first year than to any other subject. This offers a real opportunity to the Department of Chemistry to establish rules of procedure in the laboratory which will train the student in those high ranking traits, or characteristics, of cleanliness, neatness, business-like attitude, accuracy, promptness and confidence in one's own work. I have found that when the development of these traits is emphasized in the work of the student during the first year in the Department of Chemistry, the procedure in the laboratories of the Department of Pharmacy during subsequent years is highly satisfactory to the student and to his instructors. On the other hand, if at the beginning of his laboratory work the student is allowed to be slovenly, to be inaccurate in his measurements, to use poor technique in manipulations, and to rely on his neighbors for confirmation of his results, his progress in the laboratories of the Department of Pharmacy is likely to be a stormy one. It is, of course, the old story of getting a good start and it falls to the lot of the Department of Chemistry to start Pharmacy students in their laboratory careers. For this reason, the Department of Pharmacy expects the Department of Chemistry to have established a routine procedure in its laboratories which shall aid in the development of those traits mentioned which are so essential to the success of the practicing pharmacist.

The final expectation of a general nature which I shall mention is one which is so obvious that it sometimes suffers neglect. The Department of Pharmacy expects the Department of Chemistry to employ educational principles which result in true learning on the part of the student. Herding large numbers of students gathered from all quarters of the campus into an auditorium to listen to lectures of a learned man whose chief interest is not in his lectures, or into a laboratory supervised only by students, is not, in my opinion, employing such principles. Sound pedagogy in all departments is the rightful expectation of the student; educational procedure which results in true learning is the rightful assumption of each department of the others.

Now, turning to some specific points of information and skill which are expected to have been developed by the Chemistry Department, I have made diagrams indicating the general plan of the courses in the departments of Chemistry

and Pharmacy in our College. You may not agree with the particular nomenclature used or with the sequence indicated, but such divergence of opinion will not affect this discussion. What I wish to demonstrate is the dependence of courses in the Department of Pharmacy on courses in the Department of Chemistry. Granting this dependence, one must admit that the Department of Pharmacy logically expects certain information and skill derived by the student from his courses in the Department of Chemistry.

It is brought out rather forcibly from these diagrams that the Department of Pharmacy draws heavily from the Department of Chemistry for specific points of information and skill. As an example, in dispensing a solution of silver nitrate, much of the necessary information comes from the course in General Inorganic Chemistry. Again, in preparing prescriptions containing acetylsalicylic acid, the information is drawn from the course in Organic Chemistry. Likewise, in manufacturing preparations of bismuth, much of the information is drawn from Analytical Chemistry both Qualitative and Quantitative. And so, on and on, such simple examples of the reliance of the Pharmacy Department on the information furnished the student by the Chemistry Department are typical, while many more complex examples could be given, such as the "adjustment of solutions," where, in dispensing, some definite information and skill involving Chemistry is very necessary for solving the particular dispensing problem.

Because of the limited time at my disposal, it is not my purpose to indicate the specific information and skill expected of the Chemistry Department by the Department of Pharmacy, but, rather, to bring to your attention that which you all know but to which, possibly, you have not given much thought—the great responsibility which the Department of Pharmacy places on the Department of Chemistry.

In conclusion, then, I shall summarize this brief expression of my opinion of what the Department of Pharmacy expects of the Department of Chemistry as follows:

1. An active coöperation with the Department of Pharmacy for the ultimate benefit of the student.
2. The development of those traits in the student which have been found to be so essential to the success of the practicing pharmacist.
3. Teaching technique of a high order which results in true learning.
4. A fund of basic principles, specific information and skill inculcated in the student for application in the courses of the Department of Pharmacy.

I realize that I have placed my expectations high but my experience has indicated the possibility of their fulfilment.

I salute the Department of Chemistry as the foundation upon which the Department of Pharmacy has been enabled to build its towers of progress.

A. Ph. A. Resolution No. 13. Official Recognition of the Pharmaceutical Syllabus.

Resolved, that we express our appreciation of the work of the National Pharmaceutical Syllabus Committee culminating in the publication of the Syllabus for the four-year course in pharmacy and that we concur in the recommendation of Chairman J. G. Beard of the Syllabus Committee to the effect that the Syllabus be given official recognition by colleges and boards of pharmacy.

THE RELATIONSHIP OF PRESCRIPTION INCOMPATIBILITIES* TO PHARMACY.

BY LEON W. RICHARDS.

Just what is the true relationship of prescription incompatibilities to the present-day pharmacist? If catalog descriptions and A. PH. A. convention discussions are to be taken as true indications of the materials taught in the various dispensing departments, the subject of prescription incompatibilities occupies a place of importance in most colleges of pharmacy. In the way of illustration, a catalog description of a three-credit two-semester dispensing course of a certain college is given as follows: "A comprehensive study of the incompatibility and the compounding of medicinals, with regard to dosage, physical, chemical and therapeutic incompatibilities." Such emphasis on incompatibilities apparently is not the exception but rather the rule in dispensing classes of to-day.

The question arose as to whether the value of this knowledge of prescription incompatibilities warranted the time and money spent on this subject. In seeking to answer this question, a number of owners of both professional and commercial drug stores were interviewed as to their experiences and opinions. Their reactions indicated one of two things to be true; *first*, either the subject is overemphasized, or, *second*, the teachers have failed to get a working knowledge of the subject across to the students.

The dispensing pharmacists seem to be mildly unconcerned relative to this entire subject. Several factors influencing this present-day indifferent attitude are, *first*, the new type of to-day's prescription; *second*, the difficulty involved in making a change in an incompatible prescription with the whole-hearted consent of the physician; *third*, the vagueness in the minds of the graduating students concerning the subject, and, *lastly*, the relative infrequency of incompatible prescriptions.

There has been considerable change in the types of prescriptions in the last fifteen to twenty years. The art of compounding, though broader in scope, is less complex than of former times. It is an accepted fact that the day of the so-called "shotgun prescription" is past and the tendency is toward simplification. Nowadays the doctors are constantly being detailed on this and that specialty. The figures of the "St. Louis Drug Store Survey" clearly show the natural result from this practice. It was found that a total of 35% of all prescriptions contain only one ingredient and the average for all prescriptions surveyed contained only 2.4% ingredients; which is astonishingly low as compared to the ten and fifteen components of not so long ago. Obviously, these simplified prescriptions have greatly reduced the number of cases of incompatibilities, a fact which most assuredly has an important bearing on this subject.

Moreover, with the advent of this new type of prescription, there has come an increasing use of the proprietary remedies which has added more confusion to an already difficult subject. The very nature of these preparations limit the compounder in applying his knowledge in instances of incompatibilities. Of course he knows the general nature of these materials but in the end he usually is forced to add a shake label and dismiss the case.

* Section on Practical Pharmacy and Dispensing, A. PH. A., Madison meeting, 1933.

Now as to the difficulty involved in changing incompatibilities in physician's prescriptions one finds quite another problem. The suggestion is always made to the dispensing student that he get in touch with the doctor and they correct the difficulty together. This theoretical plan is difficult to carry through to a satisfactory close. A number of physicians resent this attitude of the pharmacist and insist that the prescription be dispensed as written. Such a condition necessarily fosters the shake label remedy and cannot help but have a derogatory influence on future practices. If the druggist proceeds to the correction without this consultation, which many are doing, there are the self-evident encumbering difficulties. However, there seems to be no acceptable solution for this situation and the problem is most frequently settled with the already over-exercised "shake" label.

In the third factor, which pertains to the vagueness in the minds of the graduating student concerning this complex subject, one encounters a vital question. As a student, he is instructed in the various types of incompatibilities possible and he learns there are a number of general rules as to how groups of substances may or may not react. Then he learns of the exceptions to these rules, and then possibly the hundreds of special cases are brought to his attention. In the end he endeavors to correlate his qualitative chemistry, his general pharmacy, etc., to the point of recognizing and correcting these hundreds of possible incompatibilities. Time will permit him to investigate at first hand only a very few examples of this broad field. The neophyte becomes more or less imbued with the subject and graduates expecting to plunge into incompatibilities by the score; but, as a matter of fact, he meets very few.

This brings up the last point involved, that of the infrequency of occurrence. The average pharmacist, through lack of application, soon forgets his heterogeneous assortment of rules pertaining to the subject and hence pays it little attention in the scramble to make more money. A little mucilage of acacia may be added now and then, or some other simple remedy brought into use occasionally, but the "shake well" label is always handy.

Therefore, it is the author's belief that changing conditions in the field of pharmacy have relegated prescription incompatibilities to a minor rôle in pharmacy of to-day and these conditions necessitate a revision in the methods of teaching this subject.

SUPERSTITION, CREDULITY AND SKEPTICISM.

THREE BUGBEARS WITH WHICH PHARMACY HAS ALWAYS HAD TO CONTEND.

BY CHARLES WHITEBREAD.*

A belief in the interposition of supernatural powers in the direction of earthly events has prevailed in every age and country in the exact proportion to its want of knowledge. "In the opinion of the ignorant multitude," says Lord Bacon, "witches and imposters have always held a competition with physicians." Galen also complains of this circumstance, and observes that his patients were more obedient to the oracle in the Temple of Æsculapius, or to their own dreams, than they were to his prescriptions.

* Assistant Curator, Division of Medicine, U. S. National Museum.

There is an unaccountable propensity in the human mind, unless subjected to a very long course of discipline, to indulge in the belief of what is improbable and supernatural. This is perhaps more conspicuous with respect to medicine than to any other affair of human life, both because the nature of diseases and the art of curing them are more obscure, and because disease necessarily awakens fear, and fear and ignorance are the parents of superstition. Every disease, therefore, the origin and cause of which did not immediately strike the senses, has in all ages been attributed by the ignorant to the wrath of Heaven, to the resentment of some invisible demon or to some malignant aspect of the stars, and hence the introduction of all sorts of superstitious remedies, most of which were intended as expiations to these offended spirits, rather than as natural agents possessing medicinal powers.

Every substance whose origin is involved in mystery has at different times been eagerly applied to the purposes of medicine. A tendency to attribute every ordinary and natural effect to some extraordinary and unnatural cause is one of the striking peculiarities of medical superstition. It seeks also explanations from the most preposterous agents when obvious and natural ones are in readiness to solve the problem. Soranus, for example, who was contemporary with Galen, and who wrote the life of Hippocrates, tells us that honey proved an easy remedy for the thrush of children, but instead of at once attributing the fact to the medical qualities of the honey, he very gravely explains the virtue of the remedy by stating that it was obtained from beehives near the tomb of Hippocrates.

The introduction of precious stones into the materia medica of the past was not based upon any philosophical principle, but arose from a superstition that their beauty and value made them well-adapted receptacles for good spirits. Even those salutary virtues which many herbs possess, were, in the times of great superstitious delusion, attributed rather to the planet under whose ascendency they were collected, or prepared, than to any natural and intrinsic properties in the plants themselves. Indeed such was the supposed importance of planetary influence, that it was usual to prefix to recipes a symbol of the planet under whose reign the ingredients were to be collected. The character which is used at the head of prescriptions, and which is understood and supposed to mean recipe, is a relic of the astrological symbol of Jupiter, as may be seen in many of the older works on pharmacy, although at present so disguised by the addition of the down stroke which converts it into the letter R, that were it not for its cloven foot we might be led to question the fact of its superstitious origin.

Credulity is closely allied to superstition, yet it differs very widely from it. Credulity is an unfounded belief in what is possible, although destitute of proof and perhaps of probability; but superstition is a belief in what is wholly contrary to the laws of the physical and moral world; thus, if we believe that an inert plant possesses any remedial power, we are credulous, but if we were to imagine that, by carrying it about with us we should become invulnerable, we should in that case be superstitious. Credulity is a far greater source of error than superstition, for the latter must be always more limited in its influence, and can exist only, to any considerable extent, in the most ignorant classes, whereas credulity diffuses itself through the minds of all classes.

This mental imbecility is not characteristic of any age or country, in spite of the fact that the United States is accused of possessing more than its share of cre-

dulity, and until comparatively recent times it was not uncommon to hear it called the "Paradise of Quacks." If we refer to the words of Aetius, written nearly 1400 years ago, we discover the existence of a similar infirmity with regard to medicine. This author collected a multitude of nostrums, particularly those that had been celebrated, many of which he mentions with no other view than to expose their folly, and to inform us at what an extravagant price they were purchased. We accordingly learn from him that the collyrium of Danaus was sold at Constantinople for 120 numismata, and the cholical antidote of Nicostratus for two talents. In short, we find an unbounded credulity with respect to the powers of inert medicines, leading down from most ancient times to the elixir and alkahest of Paracelsus and Van Helmont, to the tar water of Bishop Berkley, to the metallic tractors of Perkins, and the nostrums of our own times. The writings of Scribonius Largus, a Roman compiler of medicines who lived in the first century after Christ, disclose ample evidence that the practice of keeping medicines secret for fraudulent purposes prevailed in a most marked degree in that distant time; while the sacred orations of Aristides satisfy us that the conduct of the Asclepiads was the very prototype of the cruel and remorseless frauds so wickedly practiced by the unprincipled quacks of the present time.

Fig. 1.—Perkins' Tractors.

A metallic contrivance devised by Elisha Perkins, Norwich, Connecticut, 1740–1799, for the cure of disease. Consists of two short, conical, pointed instruments, each flattened on one side, one having the appearance of brass, the other of steel. They were applied by drawing the points over the affected parts for about 20 minutes at each sitting.—*Courtesy of U. S. National Museum.*

Credulity is belief without reason. Skepticism is its opposite, reason without belief, and is the natural and invariable consequence of credulity. For it may be generally observed that people who believe without reason are succeeded by others whom no reason can convince. Suppose, for instance, that a credulous person experiments with a nostrum, or one of our modern "royal roads to health," upon which unworthy and extravagant praise has been bestowed. When such a person discovers that the alleged medicine, or form of treatment, falls entirely short of the efficacy ascribed to it, the chances are that he will not only abandon the use of that particular medicine, or method of cure, but in the future will be unwilling to concede to the healing art in general that degree of merit to which in truth and justice it is entitled, and thus be converted into a skeptic.

There is a saying that there is some good in everything, and many of the practices which superstition has at different times suggested, and credulity has made possible, have not been entirely absurd. In fact, some of them have even possessed, by accident, natural powers of considerably efficacy, while others, although ridiculous in themselves, have actually led to results and discoveries of great practical importance. One of the most remarkable instances of this kind is that of the

sympathetic powder of Sir Kenelm Digby, Knight of Montpelier. Whenever any wound had been inflicted, this powder was applied to the weapon that had inflicted it, which was, moreover, covered with ointment, and dressed two or three times a day. The wound itself in the meantime was directed to be brought together, and carefully bound up with clean linen rags, but, above all, to be let alone for seven days, at the end of which period the bandages were removed, when the wound was generally found perfectly united. The triumph of the cure was ascribed to the mysterious agency of the sympathetic powder which had been so carefully applied to the weapon, when as a matter of fact scarcely necessary to state, the promptness of the cure depended upon the total exclusion of impurities, and upon the curative operations of nature not having received any disturbance. The result, beyond

Fig. 2.—Touch-pieces.

Types of touch-pieces presented to patients after the ceremony of royal touch for the cure of scrofula, or "King's Evil." The touch-piece was worn as an amulet suspended from the neck. Royal touch is said to have originated with Edward, The Confessor, 1004–1066, and to have been practiced by succeeding kings and queens of England down to Queen Anne (1664–1714).—*Courtesy of U. S. National Museum.*

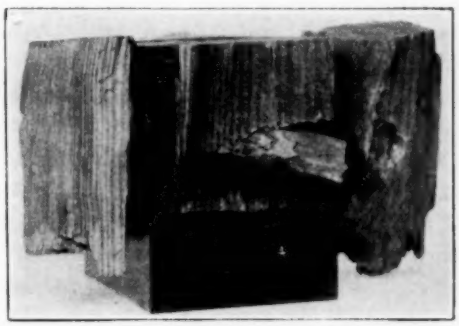

Fig. 3.—Transference of Disease.

A specimen illustrating one of the many forms of disease transference. Section of a tree grown on government grounds near the Naval Hospital, Norfolk, Va. The tree had been tapped, human hair inserted in the hole and the hole then plugged and sealed with clay.—*Courtesy of U. S. National Museum.*

"If you can get a few strands of your enemy's hair, bore a hole in a tree, put them in and plug up the hole, you can thus give him a headache which cannot be relieved until the hair is taken out of the tree."—*Encyclopedia of Superstitions.*

doubt, furnished one of the first hints which led surgeons to the improved practice of healing wounds by the method which later on was called the first intention.

Smallpox inoculation was practiced in India and Turkey on a superstitious principle long before it was introduced as a rational practice. It appears that the greatest obstacle which vaccination encountered in India was a belief that the natural smallpox was a dispensation of a goddess, or rather, that the disease was an incarnation of the evil goddess herself, into the afflicted person. The fear of offending this goddess, and of exposing themselves to her resentment, necessarily rendered the natives of the East averse to vaccination, until a superstitious impression, equally powerful, with respect to the new practice, was happily effected. The new belief was that the goddess had voluntarily chosen the new and milder method of mani-

festing herself to her votaries, and that she might be worshipped with equal respect under the new method.

The cures effected by royal touch, which are usually cited as proof of the power of faith over disease, or of mind over the body, seem to have been produced by very different causes. It seems that it was a part of the duty of the royal physicians and surgeons to select such patients afflicted with scrofula as evinced a tendency toward recovery and as the touch of the king, like the sympathetic powder of Digby, secured the patient from the mischievous importunities of art, so were the efforts of nature left free and unhampered and the cure of the disease was not retarded by the operation of adverse remedies.

Superstition is diminishing with enlightenment, but we still have with us, and in larger numbers than the average person might suspect, those who wear a bent horseshoe nail around the finger, carry a horse-chestnut on the person, and depend upon madstones and numerous like objects to cure or prevent disease. And it is apparent to all that if it were not for the credulous, the manufacturers of secret nostrums, who viciously prey upon the sick by the use of fraudulent and exaggerated claims, could not continue to thrive until exposed and forced out of business by the state and federal authorities.

It must be admitted that at that period in history when reason first began to throw off the yoke of unlicensed authority, it required superiority of understanding, as well as intrepidity of conduct, to resist the powers of the superstitions which had so long held the world in captivity. There was a need of skeptics then, and there is some need for them yet, but it may be well for those who cherish and cultivate a spirit of skepticism, merely from the idea that it denotes the exercise of a superior intellect, to remember, as some one has said, that "unlimited skepticism is as much the child of imbecility as implicit credulity."

Those engaged in any branch of health work learn quickly enough that the old foes of medical progress—superstition, credulity and skepticism—are still rampant. The superstitious continue to try out their magic cures or preventives. The credulous resort to the use of the vicious secret nostrums, while the skeptics just delay action for no good reason except a general disbelief in most everything. After adding other causes of people's dilly-dallying with such an important matter as health, such as carelessness, disregard of personal or community health, false economy, etc., it seems wonderful that medical science is accomplishing so much with so many hindrances.

We have learned that many diseases, including those which are exacting the heaviest toll, are curable if early warning signs are heeded promptly. The health authorities and association workers are doing much to acquaint the people with danger signals which precede serious conditions of health. The "have a physical examination on your birthday," and "see your dentist twice a year" slogans are sending home the thought that it is good policy to ascertain periodically how the body is functioning, while the "your druggist is more than a merchant" slogan and others like it direct the people to the source upon which they should rely completely in matters pertaining to the dispensing of medicines. The past few decades have been filled with medical discoveries of the highest importance. With these discoveries have come successful methods of combating heretofore uncontrollable diseases. More research along medical and health lines is being carried on than ever

before. The colleges are preparing graduates more fully equipped to practice medicine, dentistry, pharmacy and all branches of health work, and hospital service and nursing have reached points approaching the ideal.

The accomplishment of reducing the death rate of tuberculosis in the United States in a comparatively short time from 201 to 81 per 100,000, and the success which has followed the application of scientific methods to the prevention of typhoid fever, diphtheria and many other diseases, are examples of what is being achieved by coöperation.

An enormous amount of work is being done to teach the public that the help of each individual is needed if the best result is to be obtained. Well thought out campaigns are being carried on against disease, and much money is being spent to impart the simple knowledge that delays are dangerous when health is involved. In view of all that is being done, it is somewhat discouraging at this late day to know that there are educated people in this country who possess madstones, and like magic charms, and have faith in them as curative and preventive agents; to see friends who should know better than to patronize the venders of worthless secret nostrums; and to hear the skeptics condemning generally accepted methods of treatment.

The bugaboos of progress—superstition, credulity and skepticism—are not new enemies of physicians and pharmacists, and the task of health workers in the future, as in the past and present, must be not only to conquer and control diseases, but to train those who retard progress to think right and act promptly when their health or that of others is concerned.

HUGH MERCER BOOK OF 1769.

The Hugh Mercer Apothecary Shop of Fredericksburg, Va., has received an old volume which bears the book plate of Dr. or Gen. Hugh Mercer with his coat of arms, and under it written, in Dr. Mercer's handwriting, "Hugh Mercer 2–6 February 1769." On the title page appears again "Hugh Mercer." The book was given by E. Y. Guernsey, of Bedford, Ind., at the request of William E. Carson, of Riverton, Va., chairman of the Virginia commission on conservation and development.

Mr. Guernsey, a director of the Indiana Federation of Art Clubs, has found that the book passed into the hands of Gen. Thomas Posey, who carried it to Indiana, and from General Posey it passed to Governor Jennings, Indiana, who was born in Rockbridge County, Va. Governor Jennings' Indiana home was in Charlestown, where Mr. Guernsey procured the book.

General Thomas Posey, of the Fredericksburg region, was a member of the No. 4 Masonic Lodge here at the same time that General Washington, Weedon, Woodford, Wallace and Mercer were members. He was a member of the Virginia Committee of Correspondence, a brigadier-general in the Revolutionary War, United States Senator, Governor of Indiana, 1816–1818, and Indiana Agent at Shawneetown, Ill., where he died in 1818.

The book bears marginal notes in the handwriting of General Mercer. The title page of the book reads: "Chronological Tables of the World—Commencing with the Creation and Ending with the Nativity of Jesus Christ—Comprehending Ye Space of 3950 years. Digested into Ye Same Method with Ye Chronological Tables of Col. W. Parsons. By the Reverend Mr. Adam Blandy, M.A., and late Fellow of Pembroke Coll: Oxon."

ALEXANDRIA CITIZENS SEEK TO PURCHASE THE BUILDING FORMERLY OCCUPIED BY LEADBEATER PHARMACY.

George A. Ball, of Muncie, Ind., has donated $1000 to the Association for the Preservation of Alexandria Antiquities; other amounts have been donated and a final effort will soon be made to raise the necessary amount for retaining the equipment purchased for the AMERICAN PHARMACEUTICAL ASSOCIATION as a Museum. The ASSOCIATION agreed to leave this material in Alexandria, provided the Alexandria organization acquires the building by purchase and maintains the Old Apothecary Shop as a museum.

PROCEEDINGS OF THE LOCAL BRANCHES

"All papers presented to the Association and Branches shall become the property of the Association with the understanding that they are not to be published in any other publication prior to their publication in those of the Association, except with the consent of the Council." —Part of Chapter VI, Article VI of the By-Laws.

ARTICLE III of Chapter VII reads: "The objects and aims of local branches of this Association shall be the same as set forth in ARTICLE I of the Constitution of this body, *and the acts of local branches shall in no way commit or bind this Association, and can only serve as recommendations to it.* And no local branch shall enact any article of Constitution or By-Law to conflict with the Constitution or By-Laws of this Association."

ARTICLE IV of Chapter VII reads: "Each local branch having not less than 50 dues-paid members of the Association, holding not less than six meetings annually with an attendance of not less than 9 members at each meeting, and the proceedings of which shall have been submitted to the JOURNAL for publication, may elect one representative to the House of Delegates."

Reports of the meeting of the Local Branches shall be mailed to the Editor on the day following the meeting, if possible. Minutes should be typewritten with wide spaces between the lines. Care should be taken to give proper names correctly and manuscript should be signed by the reporter.

CALIFORNIA COLLEGE OF PHARMACY STUDENT BRANCH.

OCTOBER 4, 1933.

President Isi called the meeting to order. Mr. Mac Williams suggested that we give Mr. Doble and the program committee a vote of thanks for the fine program they arranged, which preceded the meeting; it was moved, seconded and passed upon. Mr. Doble then asked the members to coöperate with the honor society which was approved of by all the members.

Mr. Yerman discussed the possibilities of having a drug garden and stated that he had corresponded with various drug concerns from which he obtained very satisfactory information on drugs. President Isi suggested that Mr. Yerman obtain the assistance of some other member on the project.

A discussion on the payment of dues was brought up, upon which was decided that Treasurer Uomini have the new members pay their dues in the best way possible. Following a general discussion on the dates concerning the holding of meetings, President Isi announced to the prospective members that the day meetings would be held on every third Thursday of the month in the Cafeteria and the evenings would be held on the first Wednesday of the month.

Mr. Doble announced that various programs would be arranged during the day and that the entire student body would be invited.

Mr. Mac Williams gave a brief talk concerning the president of the AMERICAN PHARMACEUTICAL ASSOCIATION, W. Bruce Philip, also outlining the aims of the A. PH. A. to the prospective members and earnestly requested that they join. Mr. Mac Williams then announced that a surgical supply demonstration would be held here soon.

Program Preceding the Meeting of October 4, 1933.—Mr. Mac Williams, our sponsor and adviser, gave a brief talk on the aims of the A. PH. A. and invited the students of the college to join, after which he introduced the president, John Isi. After thanking Mr. Mac Williams, President Isi introduced the Dean of the college, Dr. Carey. Dr. Carey said a few words on the benefit such an organization as this would have on raising the standards of Pharmacy. Dr. Max Marshall, of the Hooper Foundation, was then introduced by Dean Carey. Dr. Marshall gave a very interesting illustrated talk on the high points of bacteriology and its relation to Pharmacy. Several of the subjects he covered were:

"Historical High Lights of Bacteriology"

"Pasteur and Bacteriology"

"Modern Bacteriology and Its Various Fields."

Upon the conclusion of Dr. Marshall's talk Mr. Mac Williams thanked him and asked that the members of the A. PH. A. remain for a meeting and invited all students interested in the A. PH. A. to remain.

NOVEMBER 1, 1933.

The meeting was called to order by President Isi. The minutes of the previous meeting were read and approved.

Mr. Yerman announced very favorable progress on the drug garden and there followed a general discussion on the subject.

Mr. Popoff announced he had in his possession a few old Italian prescriptions which were very comical and interesting, which he read.

Due to the absence of Vice-President Allen Caldeira from school this year it was suggested that a vice-president be nominated. Nominations were opened by the president, who nominated Mr. Doble, and he was elected.

Mr. Doble then announced that the only future field trip planned was a trip to the Alvarado Beet Sugar Plant and the possible date would be November 18th. Mr. Doble also announced that he had inquired at the Presedio as to the rank of a Pharmacist in the army and found that the Pharmacist ranked under the Medical Administrative Corps and that the ratings were second lieutenant and captaincy. He also gave all the requirements and the wages paid.

Mr. Mac Williams gave a general talk on the organizations of the college. He urged the students of the A. PH. A. to keep up their interest. He also asked that they continually attend the meetings and urge the members who are continually absent from meetings to attend also. Mr. Mac Williams then suggested that the secretary contact the alumni of the Bay area and inform them of the A. PH. A. so as to obtain their interest.

Mr. Mac Williams stated that California is to have a new Pharmacy Law in 1935 and asked the members to assist the faculty to draw up an ideal Pharmacy Law. He also stated there would be a distinction between the word "Pharmacist" and the word "Druggist" in this law. He then suggested that the members contact the University of Southern California College of Pharmacy so as to have their help in obtaining enough power to procure recognition on the new State Pharmacy Law of 1935.

Mr. Mac Williams informed that the A. PH. A. was strictly specialized and asked that the members become friendly with the State Associations as it might be helpful in gaining recognition in 1935. He concluded by asking that representatives attend the State Pharmaceutical Conventions for the purpose of recognition.

EUGENE BETTENCOURT, *Secretary.*

CHICAGO.

The first monthly meeting of the school year, 1933–1934, was held at the University of Illinois College of Pharmacy, 715 S. Wood Street, Tuesday evening, October 17th.

The meeting was called to order by President R. E. Terry.

Dean Day gave a résumé of the Plant Science Seminar held at Madison, Wisconsin; he was the chairman of this group of college teachers interested in Pharmacognosy. The meeting occupied an entire week and consisted of talks, business meetings, field trips and also sidelines of interest.

A very interesting report was given of the pleasant surroundings enjoyed by the group, of a visit to the Forest Products Institute where lumber and woods are tested, treated, etc. Lantern slides of American Medicinal Plants were shown to the group. These were taken by a former University of Wisconsin photographer and Dean Day suggested that he would be able to obtain these and present them to our group at some future meeting.

Professor Gathercoal presented a report of the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION held at Madison. A chart was placed on the board showing twelve distinct sub-divisions of the ASSOCIATION, the number of meetings each held and some of the work that had been done by each group. Professor Gathercoal mentioned that the undertone at the convention was the distinguishing between professional pharmacies and the commercial drug stores.

Professor Terry gave a short report of the N. A. R. D. convention held in Chicago. He also gave a discussion of the professional pharmacy exhibit that was shown at the A. PH. A. convention and the A. M. A. convention. This exhibit of charts and preparations was compiled by J. Leon Lascoff, pharmacist, of New York City.

A rising expression of thanks was extended the speakers of the evening.

LAWRENCE TEMPLETON, *Secretary.*

DETROIT.

The October meeting of the Detroit Branch, AMERICAN PHARMACEUTICAL ASSOCIATION, was held at Webster Hall, Thursday evening, October 19th. The meeting was preceded by a dinner.

At the dinner Wilbur L. Scoville was introduced by President Felix Johnson of the University of Michigan, who welcomed Dr. Howard B. Lewis, recently appointed Dean of the College of Pharmacy of the University

of Michigan. Mr. Scoville recommended Dr. Lewis for honorary membership in the Detroit Branch, A. PH. A. The election was unanimous.

Dr. Lewis thanked the Detroit Branch for the honor and assured the members that as Dean of the College of Pharmacy he would continue to lend every effort and support to the Detroit Branch.

The meeting was called to order by President Johnson. The minutes of the previous meeting were presented by the secretary.

The first speaker on the program, introduced by the president, was Clare F. Allan, past-president of the National Association of Boards of Pharmacy, who reported on the convention of that Association held at Madison, Wis.

Mr. Allan said thirty-six states were represented at that meeting, an all-time new record for that organization. Part time of the secretary of the National Boards of Pharmacy had been given to the Century of Progress Exhibit by the Association. Recently Georgia and Wyoming joined the many states requiring the prerequisite.

The next speaker was Professor Charles H. Stocking of the University of Michigan, past-president of the American Association Colleges of Pharmacy; Professor Stocking reported on the convention held by this Association. While 1694 students, 52 with advanced degrees, were graduated from recognized colleges of pharmacy in 1933, the attendance of pharmacy students has decreased 23%. Professor Stocking, like Mr. Allan, made it clear that their organizations were striving hard for the advancement of pharmacy. They lamented the fact that the Michigan Legislature did not see fit to raise the standards of pharmacy at the last session to meet the requirement of our border states and the national associations. They insisted, however, they would not stop fighting for the prerequisite law.

Secretary L. W. Rowe of the Scientific Section of the AMERICAN PHARMACEUTICAL ASSOCIATION, reported on the Convention of the A. PH. A. Notwithstanding the existing conditions the attendance was up to standard and the meeting was one of the most interesting ones he had attended in many years. Much constructive work was done and considerable time was devoted to the Code. He commented on the reports of President W. Bruce Philip and the President-Elect, Robert L. Swain.

An account of the new deal in the National Association of Retail Druggists was given by John H. Webster, former president of that Association, who also commended the Exhibitors' Association for the splendid drug show held in conjunction with the N. A. R. D. Convention in Chicago.

A general discussion followed, lead by Messrs. Webster, Dikeman and Hayes. Mr. Hayes presented many good points and thoughts on modern merchandising to the members of the Detroit Branch.

At this meeting a representative from each of the four recognized colleges of pharmacy was present: E. H. Wisner of Ferris Institute, Dean R. T. Lakey, of the College of Pharmacy of the College of the City of Detroit, J. L. Dorion of Detroit Institute of Technology and Dr. Howard B. Lewis of the University of Michigan. A good representation of teachers and students from the local colleges of pharmacy were present. President J. Walter Runciman, of the Detroit Retail Druggists' Association, was also in attendance.

A rising vote of thanks was given the speakers. BERNARD A. BIALK, *Secretary.*

NEW YORK.*

The Remington Honor Medal was presented to Dr. Evander F. Kelly, secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION, at the regular meeting of the New York Branch held on October 11th.

Prior to the meeting a get-together supper was served at the Pythian Temple in New York City. About one hundred members and guests attended this part of the evening's activities.

The presentation of the medal took place at the Branch meeting in the New York College of Pharmacy, Columbia University. President Ernst A. Bilhuber was in the chair and called the meeting to order. On a motion made by Dr. Kidder and duly seconded the business part of the meeting was omitted and President Bilhuber immediately proceeded with the special program.

Dr. Bilhuber, in his introductory remarks, outlined briefly the history of the Remington Medal and mentioned the names of previous recipients of the honor.

Following this the guest speakers were individually introduced by the president.

Dr. Robert L. Swain, who spoke on "Kelly, the Educator;" Dr. Henry A. B. Dunning, who spoke on "Kelly, the Association Man;"

* See also October JOURNAL, page 1006.

Dr. Samuel L. Hilton, who spoke on "Kelly, the Co-Worker;" Editor Eugene G. Eberle, who spoke on "Kelly, the Associate and Friend."

Immediately before the actual presentation of the medal, Dr. Bilhuber called attention to the fact that Mrs. Kelly, without doubt, knew the recipient better than any of the previous speakers and although we had not heard from her she was undeniably in a position to tell a great deal about his life. In recognition of Mrs. Kelly's part in the medalist's life, she was presented with a bouquet of flowers by the president of the Branch. Mrs. Kelly was applauded by the members and guests.

Dr. Otto Raubenheimer, past-president of the New York Branch, in a very brief and sincere message congratulated Dr. Kelly on his numerous achievements whereupon the medal was presented to our honored guest.

Dr. Kelly delivered his address, which follows:

"It has been my privilege to have been connected with pharmacy for nearly thirty-five years and, during that time, to have served in almost every division of it. It has been my privilege, also, to have known a large number of the men and women associated with pharmacy, including many of the leaders in both the profession and the industry. It was my good fortune to know the distinguished pharmacist in whose honor this award is named.

"With very few exceptions, mine has been a pleasant experience and a profitable one, not so much in material gain as in the splendid contacts and rich friendships that have been made possible for me and which are life's greatest rewards. My entry into pharmacy was entirely accidental on my part and was intended to be but brief. The work and the prospects were soon found to be so interesting as to lead to the adoption of pharmacy as a life's work, a decision which, so far, there has been no cause to regret. My apprenticeship was spent in a well-conducted pharmacy under a good preceptor, and pleasant surroundings and among delightful people, one in particular. It later became possible for me to enter upon a course in pharmacy in the Maryland College of Pharmacy, now the School of Pharmacy of the University of Maryland, and in this institution, then an organization of pharmacists with a teaching faculty, to come under the instruction and influence of a truly remarkable group of pharmacists. Among them were such leaders as Caspari, Simon, Culbreth, Hynson, Base, Schmidt, Piquett, the Dohmes, Hancock, Elliott, Mansfield, Frames and many others who impressed me by their ability, their love of the profession and their code of ethics. This circle of friends and advisers has steadily widened in the intervening years, I am happy to say. Their guidance and support have made it possible for me to do the work in which I have been interested, and they have contributed to such progress as has been possible for me. The lack of time and my inability of expression make it impossible to name all of them and to pay the tribute to these friends that they deserve. I am glad to thus briefly acknowledge my great indebtedness to them.

"You will, I am confident, understand a special reference to one of this group. Charles Caspari, Jr., influenced my life by precept and by example, more than any person outside of my family and it is a privilege to pay this tribute to his memory.

"As our British cousins express it, Mrs. Kelly associates herself with these statements and joins me in sincere thanks to those who, in coöperation with our friend, Dr. Schafer, established this medal, to those who awarded it to me, to those who arranged for this ceremony, to those who have spoken so kindly tonight and to those other good friends who by their presence here or by their messages or otherwise have made this such a memorable occasion for us and for our children.

"The receipt of such an honor is a high mark in any pharmacist's career and it has led me, with other events, to a rather searching appraisal of myself and of the calling to which my working life has been given. The self appraisal is of no interest here other than to mention that it has occurred with greater frequency as the years have passed and with increasing concern to the appraissee. Certain comments about our profession may be of interest as your working life or that of those dear to you have also been devoted to pharmacy.

"The working life of the individual is, at the best, but a comparatively short period of time. To those who live with purpose and effect, it seems entirely too short: to those who merely live, time is of but little importance. During this brief period, we make our entire contribution to human progress. There can be no repetition, no opportunity to correct omissions or mistakes. From the standpoint of the general welfare, the working life is the most precious possession that the individual can give

to any cause and, by the same token, it is the most valuable contribution that any cause can receive from the individual. The sum of the working lives of the individuals is the total of human progress.

"The choice of the activity of which our working life is to be given is, probably, the most important decision of our lives. A few changes from the first choice, frequently the first choice leads into other fields of endeavor, but the large majority follow the original selection. Despite its importance, the selection is usually accidental or is influenced by circumstances and surroundings. Possibly, this procedure is Nature's way of maintaining the balance, but the result might, at times, lead to the conclusion that progress is made in spite of rather than because of our own efforts. The selection of those who enter our profession is a question of primary importance to its future.

"The success and future progress of a profession depend in large measure, it seems to me, upon four conditions: its necessity to human welfare and comfort, and its contributions to the general good: the ethics and restrictions under which it is practiced; the attitude to the profession of those who practice it; and, lastly, the surrounding conditions.

"It appears to be well established that pharmacy was an organized activity when recorded history began, and that it has had a continuous existence since that time. Its history, despite the dark spots that mar the record of all human activities, is creditable and indicates that pharmacy has kept reasonably abreast of progress in other fields. In addition to its own development, pharmacy has contributed to human knowledge and to the progress, even to the establishment, of other callings, as it has received aid from others. Unless it had been a necessary service, it would not have stood the long test of time and would long ago have disappeared as an organized division of society. Pharmacy has earned recognition as a separate and important division of medical care, through its long service and through its contributions to public health and to human welfare.

"Although it has been led astray at times and has lent itself to practices contrary to and outside of its purposes, the course, in general, has been so true as to be a source of pride and inspiration to every pharmacist, especially when the responsible character of its work and the dangerous properties of many of the substances it employs are considered. If the past is a guide to the future, the permanency of pharmacy as a public health profession is assured as far as any assurance can be understood.

"The code of ethics, and the governmental as well as voluntary restrictions which pharmacy has developed and accepted for its own regulation, are in accord with its aim and purposes, and reasonably bear comparison with those of other public health professions. The training and educational process for entry, the tests imposed for registration, and the restrictions on the practice of pharmacy, are designed to develop a responsible citizen and a dependable pharmacist and to provide adequate service and reasonable protection for the public interest. The approved ethics and standards indicate a rather high purpose for the calling and that its practitioners accept pharmacy as a profession with a clear recognition of the responsibilities and limitations imposed and accepted. It must be evident, however, to anyone who makes himself acquainted with present-day conditions, that pharmacy has not had legal protection, in its file, commensurate with these responsibilities and limitations, and in keeping with the public interest. Drugs and medicines, because of their nature, cannot be dealt with as ordinary articles of commerce, and public welfare demands that they be dealt with on a different basis.

"There has been and probably will be for some time considerable variations between professional ideals and professional practice. The variation is easily noticeable in our calling and in too many instances is objectionably evident. It is, no doubt, taken by the public to reflect the attitude of pharmacists toward their profession.

"Two unfortunate conditions contribute to this situation which should be recognized as dangerous to our future. Pharmacy is required to furnish articles as well as professional service and advice and is, therefore, subject more than other professions to certain influences of a commercial rather than a professional character. In the present tendency to distribute anything and everything, and in the apparent lack of a definite objective, the public sees the widest variations between our professional ideals and our actual practice. Recent developments in governmental procedures have brought pharmacy face to face with the dangers of over-commercialization and with the necessity for a decision as to whether it shall be primarily a profession or a business.

"The second condition is that, while the registered pharmacist is strictly regulated in his practice, those not registered are permitted to engage indirectly in practice. A similar evasion is possible in other legally controlled professions but not to such an extent as in pharmacy. Many institutions, some of which are manifestly distributing agencies in the main, are permitted to operate under the name and reputation of pharmacy without the restrictions imposed on qualified pharmacists. They are frequently owned and operated by those who have had no basic training in pharmacy, who are unacquainted with its service or ethics, who know but little about the dangers involved for the public, and who are in the very nature of the case interested principally in the possible profits. Such persons have a useful place in commerce but have no place in a profession dealing so intimately with life and death.

"There can be no reasonable criticism of business or of those who engage in it. Business is as necessary to human welfare as the arts, or the sciences or the professions. Every profession must have a business background and be conducted on sound economic principles. The pharmacist must buy and sell. But he cannot long expect the status and the advantages of a professional man without giving the professional requirements his major thought and attention. He cannot hope to escape the classification of a merchant if he makes business activity and retail distribution his major concern. The law of cause and effect works in our activities as inevitably as in all others. The attitude of pharmacists to their profession must decide this issue.

"The general conditions surrounding the practice of pharmacy in our land are probably as favorable as those of other professions. The pharmacist is accepted as a useful and respected member of society. The drug store or pharmacy is recognized as an important institution in every community and has made a useful place for itself in the lives of the people. The jokes poked at it recently indicate that the public realizes how far many pharmacists have wandered from their real function and not that confidence has as yet been lost in pharmaceutical service or in the integrity of the pharmacy as an institution. The Chief Magistrate of the Nation has recently recognized pharmacists as professional persons—and our national and state governments, in connection with matters of great importance, have repeatedly shown their confidence in the profession by intrusting to it certain very responsible duties. Recent intensive surveys, conducted by those outside of our profession, have shown beyond question that pharmacy continues to be a necessary public health profession and that in personnel and in extent and character of service, it occupies a position of importance in our social organization. Its ethics, its self-imposed standards, its educational requirements and its equipment are being steadily advanced. Contrary to the statements of its critics and of those who see it as a vanishing profession, pharmacy has made progress in recent years, has improved its service and has strengthened its position as a profession. A keen student of the situation has recently said that 'one weakness of pharmacy, as we see it to-day is the failure of the public to recognize the part it plays in the modern treatment of disease.' He might have said that the weakness of pharmacy is its own failure to realize and fully discharge its part in public health. The public cannot be expected to recognize what it cannot see and it must be evident that in recent years pharmacy has studiously hidden its public health service, splendid as it is, from public view. Our programs, our papers and our publications have emphasized almost everything else except our public health service and connection, which are, evidently the reasons for our existence and the very basis of our strength. The principal effect of Pharmacy Week, which we celebrate this week, has been to emphasize professional pharmacy to pharmacists.

"In the present century, our nation has undergone a voluntary social revolution of the most fundamental character and of the widest scope. Our theories of living, of government, of religion, of ethics and even of thinking have been radically changed. One of the outstanding changes is in the public attitude to health and physical well-being. Public health is to-day probably the most powerful social force next to education and possibly to the church. People are health conscious and health anxious. They no longer look on health as an accident of birth or condition but as something to be won and controlled. Those who minister to health are no longer mysterious and to be consulted only in emergency, but are valued as among the most important public servants.

"Pharmacy's part in the treatment and prevention of disease and in the presentation and improvement of the public health is

important and creditable. The Charter's Report said 'A well-informed pharmacist is the best single individual to disseminate information about public health.' The Committee on the Costs of Medical Care reported that 'Drugs, medicines and medical supplies are essential to an adequate medical service, both therapeutic and preventive.'

"It is nevertheless true that pharmacy has not recognized its opportunity nor fully discharged its responsibility in the public health movement—as these reports also indicate. Its sixty thousand pharmacies should be looked upon as so many public health stations by the public. In this respect, the attitude of the members of our profession and even of its leaders, has been unfortunate. For its own welfare and future progress, pharmacy should emphasize its present contributions to public health and should increase them to the extent of its capacity. With its personnel, its organization, its equipment and particularly in its intimate contacts with the people, pharmacy could be and should be one of the dominant forces in public health. Now it is considered by many only as a distributing agency and, at that, of many articles of doubtful value to public health.

"We should realize, too, that the public have not only become interested in public health but also critical of those whom they have licensed to protect and control it. The existence of a Committee on the Costs of Medical Care, its title and the character of its final report are extremely significant to the public health professions. The serious proposal to even partly socialize medical care carries its own message. Developments in other countries show that it cannot be lightly dismissed.

"I have no fear that pharmacy will disappear because of the profound conviction that it is a necessary and indispensable public health service. There can be a question as to how and by whom the service will be rendered in the future. Fortunately, the answer is, to this time at least, in our hands. We cannot, however, give our major thought and attention to other matters and expect this all important question to answer itself in our favor. With a little organized thought and effort, the public attitude could be changed and self-control in our field assured us.

"The history of pharmacy, the professional obligations that pharmacists assume on accepting registration and the soundest economic judgment, leaving ethics entirely aside, should influence them to take their proper and responsible part in public health, to contribute their full share in its advancement and to receive the recognized professional status and the return to which they would be so richly entitled. It is difficult to conceive of a greater opportunity or a deeper satisfaction than to contribute to the health and physical well-being of people.

"Pharmacy has been a kind and considerate professional mistress to me. It has given me the opportunity to live a full life in a worthwhile calling. It has honored me and I have thoroughly enjoyed my life. If a text had been a part of these remarks, the following would have been my choice:

"'Wherefore I perceive that there is nothing better, than that a man should rejoice in his own works: for that is his portion: for who shall bring him to see what shall be after him?'

"I like to paraphrase St. Paul's statement to read, 'They are members of no mean profession.'

"Pharmacy and those who practice it, have had and will have my fullest confidence and support so long as it is permitted me to give them."

Dr. Kelly's address marked the close of the exercises and the meeting adjourned.

The meeting was well attended, about one hundred and thirty members and guests being present.

RUDOLF O. HAUCK, *Secretary.*

NORTHERN NEW JERSEY.

The first meeting of the Northern New Jersey Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION was held on September 28th, in the Rutgers University College of Pharmacy Building, at Newark. All but three of the charter members were present and it was with a thrill of anticipation that we awaited our first call to order by Dr. Little.

Dr. Little was made temporary chairman, and Professor Schicks temporary secretary. The chairman appointed a nominating committee which reported for the following officers: *Honorary President,* Dr. Philemon E. Hommell; *President,* Dr. Ernest Little; *Vice-President,* Professor Geo. C. Schicks; *Secretary,* Dr. L. W. Rising; *Treasurer,* Prof. A. F. Marquier.

The report was unanimously accepted.

The constitution and by-laws of the branch were read and officially adopted.

Dr. Little outlined plans for the operation of the branch, after which the meeting was adjourned.

SECOND MEETING.

The Northern New Jersey Branch, A. PH. A., convened October 16th at the Rutgers University College of Pharmacy, Newark, for its second meeting.

In the interim between the first and second meetings, Dr. Little had appointed the following as members of the standing committees:

1. Membership.—Robert W. Rodman, *Chairman*, Grace I. Harper, Emme J. Doyle.

2. Professional Relations.—S. B. Mecca, *Chairman*, John N. Silsby, George C. Schicks.

3. Science and Practice of Pharmacy.—C. L. Cox, *Chairman*, Louis W. Rising, O. P. M. Canis.

4. Education and Legislation.—Lloyd K. Riggs, *Chairman*, H. E. Wrensch, Philemon E. Hommell.

5. Program.—Robert W. Rodman, *Chairman*, Lloyd K. Riggs, George C. Schicks, B. J. Chiego, J. M. Block, Marie C. Jannitti.

The committee chairmen reported on the duties and objectives of their respective bodies.

Dr. L. K. Riggs and Prof. W. L. Sampson were received as the first new members of the Branch.

Robert W. Rodman gave a brief but entertaining résumé of the history of the AMERICAN PHARMACEUTICAL ASSOCIATION. The meeting was then given over to an open forum for the discussion of the proposed Food and Drugs Act. If subsequent forums are as worth while as this, our first, they are going to prove helpful indeed.

L. W. RISING, *Secretary*.

PHILADELPHIA.

The October meeting of the Philadelphia Branch of the A. PH. A. was held in the museum of the Philadelphia College of Pharmacy and Science on Tuesday evening, October 10, 1933.

Professor LaWall introduced the speaker of the evening, C. S. Brinton, Chief of the Philadelphia Station of Food and Drug Administration, U. S. Department of Agriculture, who presented a discussion of the new Food and Drugs Act. A large series of displays assisted the lecturer in demonstrating adulterations and false advertising possible under the present Food and Drugs Act.

Mr. Brinton summarized his discussion as follows:

"The aim of the present food and drugs act is to protect public health and to prevent deception of consumers. Twenty-seven years of enforcement have revealed many weaknesses in the law. The new bill is intended to plug these loopholes and to make the statute a more effective instrument against modern abuses. It preserves all worthy features of the present law and contains in addition the following new features:

"*1. Jurisdiction over False Advertising.*—Many foods and drugs bear no false statements on their packages but their advertising is blatantly deceptive. Legal actions under the present law against false labels result merely in correcting the label while continued deception of consumers may be accomplished by advertising the false claims formerly made on the labels.

"*2. Inclusion of Cosmetics.*—The health of many persons is impaired by poisonous cosmetics, and false labels and advertising are frequently employed for these products. The present law has no jurisdiction over cosmetics. This bill will correct these evils.

"*3. Better Control of Poisonous Foods.*—The present law contains no provision against poisons in foods unless they are added. This bill prohibits the sale of dangerous foods regardless of whether the hazard is caused by added poisons or otherwise. Under the present law the testimony of expert toxicologists must be introduced in every case to show the quantity of added poison in the food may be harmful to health. The bill authorizes the secretary to acquire expert advise and then to fix a safe tolerance for added poisons.

"*4. Authorization to Establish Definitions and Standards for Food.*—The present law authorizes the establishment, in the limited field of canned foods only, of one standard of quality for each generic group of canned food. This bill authorizes the establishment of standards of identity and definitions of quality for all foods.

"*5. Permits May Be Required for the Manufacture of Food* that may be injurious and against which the public cannot be effectively protected by other provisions of the bill. Some foods are susceptible of dangerous contamination in unsanitary factories. The detection of such contamination by examination of samples from interstate shipments, the only procedure authorized by the present law, is often difficult or impossible. Under this bill permits may be required for the interstate shipment of such foods, and permits would not be given unless warranted by sanitary conditions in the factories.

"6. Provisions Made for More Adequate Control of False Curative Claims for Drugs.—Many persons are influenced by false curative claims for drugs to postpone or discontinue rational treatment for serious diseases. Frequently the disease is thus permitted to progress and illness is protracted or untimely death follows. As stated in (1), there is under the present law no control of false curative claims in advertising. Even in establishing a case against such claims in labeling which, unlike advertising, is subject to the present law, the Government must show not only that the claims are false but that the manufacturer *knows they are false*. Public protection against this evil is therefore inadequate because proof of a manufacturer's actual state of mind is extremely difficult to establish. The new bill prohibits false curative claims in both labels and advertising. The Government would not be required to show that the manufacturer knows they are false.

"7. Fully Informative Labeling of Foods and Drugs Required.—The present law prohibits false labeling but does not require the manufacturer to state the whole truth as to what his product is. This bill requires foods to be labeled with their common names and drugs to be labeled with the common names of each therapeutic or physiologically active ingredient. It is an expression of the right of the consumer to know what he is eating and what he is taking for his ills.

"8. More Adequate Penalties.—Penalties in the present law are very mild. They may be regarded by some unscrupulous firms as license fees for the conduct of a lucrative illegitimate business. Heavier penalties in the bill and authorization to stop violations by injunction proceedings should have a deterrent effect on those manufacturers who are disposed to risk violations for monetary gain."

At the close of the meeting each of the 150 members of the audience was urged by Mr. Brinton to write his Senator for a copy of the New Food and Drug Bill, Senate Bill, No. 1944.

EDMUND H. MACLAUGHLIN, *Secretary.*

MEETINGS OF PHARMACISTS AND PHYSICIANS.

On October 24th pharmacists of New York City arranged for a dinner at Pennsylvania Hotel, participated in by physicians and pharmacists; about 300 were present. Dr. Curt P. Wimmer presided as toastmaster; among the speakers were: Dr. Harlow Brooks, Dr. J. C. Gerster, Dr. Terry Townsend; Dr. Walter Bastedo, Chairman E. F. Cook, Dr. William C. Anderson.

In the talks it was emphasized the medical students should be taught to prescribe from the Official Standards. A feature of the occasion was a display of U. S. P., N. F. and Recipe Book preparations.

A meeting of physicians and pharmacists was held November 3rd. It has become an annual custom to hold a combined meeting of physicians and pharmacists in the P. A. R. D. building in the fall and, later, the Philadelphia County Medical Society sponsors a like meeting in their home at 21st and Spruce Streets.

PUBLICATIONS RECEIVED.

A booklet of sixty pages on "The History of Apothecaries Practice in Nürnberg." It has been published as a memorial to the medical college on its celebration of the two hundredth anniversary in which the members of the Nürnberg College of Pharmacy have participated. There are many historical notes which deal with the apothecaries of various periods during the bi-centenary.

Contributions to the "Knowledge of the Sources of Catechins and Tanin-Containing Drugs" with special reference to catechin of cola fruit, an inaugural dissertation for the Ph.D. degree by Karl Reber, Berne, Switzerland. The author feels obligated to Dr. H. Zörnig and Dr. P. Casparis. Reprint of the research covers more than fifty pages.

Copy of a descriptive booklet published in commemoration of the opening of the Merck Research Laboratory at Rahway, New Jersey, on April 25th last. The booklet contains the complete address given by Sir Henry Dale on that occasion as well as a description of the Laboratory. Also a copy of "A Chemical Almanack," prepared for distribution at the Merck Exhibit in the Hall of Science at "A Century of Progress."

A forty-page booklet dealing with the Museum of Science and Industry, Chicago, founded by Julius Rosenwald.—An institution to reveal the technical ascent of man by Waldemar Kaempffert. It follows somewhat that of the museum at Münich in which the idea of Dr. von Miller is carried out.

COMMITTEE REPORTS

REPORT OF LEGISLATIVE COMMITTEE, A. PH. A.

Our esteemed and capable president, W. Bruce Phillip, presented a paper, at our last annual convention before the Section on Education and Legislation, entitled "How the Drug Stores May Influence Five Million Votes This November," of course, meaning the November just past. As each of you know, the difference of the popular vote at that election was near ten million. Can we suppose that Mr. Phillip's five million was an integral part of that ten million plurality? Let us so consider it and credit him with the result obtained.

On October 12, 1932, the American Bar Association approved the revised draft of the proposed uniform state Narcotic Act adopted by the Conference of Commissioners on Uniform State Laws. The fifth tentative draft was revised by the Narcotic Bureau in collaboration with representatives of the Drug Trade as far as it was possible. Our ASSOCIATION was ably represented by Drs. Swain, Kelly, Hilton and Eberle, together with President W. Bruce Phillip, who did not approve the final draft, being displeased with several of the draft's features; nevertheless, the final draft was adopted over your representatives' protest. This final draft is being submitted to the various state legislatures. This bill especially restricts the sale of exempt narcotics to registered pharmacists.

The final agreements adopted by the International Narcotic Conference at Geneva were adopted by the United States, July 9, 1933. The effect of this action limits the importation and manufacture of opium and its derivatives. The immediate result, as you have noticed, is the sharp advance in the price of codeine and its salts.

Another item of interest in the narcotic field was the attempt of Administration forces to combine the Narcotic and Prohibition Bureaus of the Federal Government, but when attention was called to the fact that the United States was a member of the International Narcotic Congress and that United States narcotic relations with foreign powers were controlled by treaties, the idea, so far as the Narcotic Bureau was concerned, was abandoned and the Bureau of Industrial Alcohol substituted for the combination with the Prohibition Bureau.

In February of this year, the Food and Drug Administration of the Department of Agriculture issued Bulletin CR 17-H wherein they deplore the extent of labeling by manufacturers by making various therapeutic claims for drugs and naming of organs of the body. The Department stated, "Persons who make or deal in substances or composition, may be held to good faith in their statements."

Following this declaration of the Department and well into the special session of the New Congress convened March 4th, there was presented to this Congress a new and more stringent Pure Food and Drug bill. Due to the urgent requests and requirements of our new President, the Congress did not consider the proposed bill, but it is very evident that the said bill will be presented early in the regular session coming in January 1934. Briefly, some of the features of this new bill as expounded by Hon. W. G. Campbell, Chief of the Federal Food and Drug Administration, are as follows:

Cosmetics are brought within the scope of the statute.

Mechanical devices intended for curative purposes and devices and preparations intended to bring about changes in the structure of the body, are also included within the purview of the law.

False advertising of goods, drugs and cosmetics is prohibited.

Definitely informative labeling is required.

A drug which is or may be dangerous to health under the conditions of use prescribed in its labeling is classed as adulterated.

The promulgation of definitions and standards for foods which will have the force and effect of law, is authorized.

The prohibition of added poisons in foods or the establishment of safe tolerances therefor, is provided for.

The operation of factories under Federal permit is prescribed where protection of the public health cannot be otherwise effected.

More effective methods for the control of false labeling and advertising of drug products are provided.

More severe penalties as well as injunctions in the case of repeated offenses, are prescribed.

Misbranded if container is so formed, made or filled so as to mislead purchaser.

Misbranded if it is an imitation of another drug.

Bonds for factory inspection where drugs are prepared, compounded, stored or packaged.

Continues the liability of corporation officers individually as well as the corporate body.

Requirements for prohibition of formula on labels.

Also it is contemplated by some of our legislators to amend the bill to provide that labels must be trade-marked or trade-marked and registered.

It is the hope of this committee that this body (the A. PH. A.) will use its best efforts to the end that the physician's prescription, filled or compounded by the pharmacist, shall be exempt from all requirements of the Pure Food and Drugs Act.

During the past year, the Department of Agriculture started actively to educate the pharmacists of the country by personal visit and inspection, on the requirements of the Caustic Poison Act. It was found that only in isolated cases were the Caustic Poison labels of the pharmacist in accordance with the law. They were directed to provide the proper labels. It might be stated here that Liquid Phenol comes under this act, but also it is considered subject to the insecticide law. Therefore, the inert part of Liquid Phenol or water, must appear on all labels when dispensed by the pharmacist and in some states the name and the address of the drug store must appear on the proprietary package.

The Administration Beer Bill, as you know, passed Congress on March 16th of this year. We of the A. PH. A. sought to have incorporated the feature that beer could not be sold where drugs and medicines are compounded and sold.

In January of this year, Representative Cellar of New York introduced a bill amending the National Prohibition Law so as to remove the causes of resentment in it by the physician. This bill was finally passed and your representatives met with Dr. Doran and others affected by this legislation for the purpose of submitting and criticizing necessary regulations for its operation. We succeeded in having eliminated from the part applicable to pharmacies the onerous features of record keeping. As the legislation is now the law and in operation, each of you who dispenses medicinal liquor, realizes the relief you have obtained and the possible increased monetary return.

In the last months of 1932, the million dollar committee, after 5 years of work and study, made this report on the Costs of Medical Care. Most of you are acquainted with the socialistic features which the report contained. If nothing is done by the pharmacists to counteract the influence created by this report, then they will find themselves legislated out of business. For your information, the following are the salient points of the report.

(1) That medical service, both preventative and therapeutic, should be furnished largely by groups of physicians, dentists, nurses, pharmacists and other associated personnel.

(2) The extension of all basis public health services.

(3) That the costs of medical care be placed on a group payment basis, through use of insurance and taxation or both.

(4) That the study, evaluation and coördination of medical service be considered important functions of every state and local community through agencies.

(5) That professional education be given necessary emphasis.

(*a*) To physicians for public health and prevention of disease, and restriction to specialization.

(*b*) That dental students be given a broader background.

(*c*) That pharmaceutical education place more stress on pharmacists' responsibilities and opportunities for public service.

(*d*) That nursing education be thoroughly remodeled.

(*e*) That competent nursing aids be provided.
(*f*) That adequate training for midwives be provided.
(*g*) For the systematic training of hospital and clinical administrators.

The biggest item of legislation that has been presented to the country in years is the recently adopted National Industrial Recovery Act. In President Roosevelt's radio talk of May 4, 1933, he stated that something had to be done to stop the 10% of an industry from disrupting the business of the other 90%. Therefore, the relief and remedies that the Capper-Kelly Bill sought to attain have been somewhat incorporated in the Industrial Recovery Act. The public has been headlined on this legislation to such an extent that it it unnecessary to detail its features herein, except to impress upon the pharmacists of this United States that they codify their rules as retailers and not in conjunction with wholesalers and manufacturers or both. Such a code has been adopted and presented to the Government for its approval.

During the past year, the actual work in the field service of the St. Louis Drug Store survey was completed. During the year, several bulletins have been published detailing various features of the work. To date, the final summation of the work has not been finished, and with the conditions in the Department of Commerce as they are, no date can be given as to when the final and complete findings will be available. But enough has been completed for the inquisitive to work with. In fact, the directors of the survey are now putting into practical use the findings of the survey by analyzing and revamping three of the Whelan stores in Washington. Inquiry reveals that after the physical changes were made and each store made a special outlet for a certain line of endeavor, the business of these stores immediately increased. This is proof that the information gathered in St. Louis is applicable elsewhere and therefore valuable if studied and used.

Finally, during the last session of the Congress of the former administration, supreme efforts were made by your president and others to get the Capper-Kelly Bill on the floor of the Senate. Dates were set, promises made and Congressmen obligated, yet, due to pressure of others, in Congress and out, the bill was always deferred for what was considered more important legislation. By the 4th of March 1933, when the Congress went out of existence, the said bill had not been presented for a vote. This Congress did absolutely nothing for the drug trade and pharmacy. The Capper-Kelly Bill and the various Nye Bills got nowhere, or rather no further than the calendar of the Senate.

Chairman, A. V. BURDINE,
L. F. BRADLEY,
FRED CAMPBELL,
M. G. GIBBS.

REPORT OF THE CHAIRMAN OF THE PHARMACEUTICAL SYLLABUS COMMITTEE.

BY J. G. BEARD, CHAIRMAN.

Several valid reasons make impossible my personal presentation of this report. Dr. H. M. Burlage, a member of the Committee, has kindly agreed to submit it for me.

The Fourth Edition of the Pharmaceutical Syllabus was released for sale on January 3, 1933. Several disappointing delays for which I was not entirely responsible prevented earlier publication. These included procrastination, disagreements and the general confusion about what should be included in the new four-year course. Advance notices of the availability of the new edition appeared in the drug press, and also in post-card announcements from my office to all persons presumably interested in its purchase.

The revision of the Syllabus extended over a five-year period. Efforts were made by me, as the new chairman to carry through expeditiously a program of revision that represented in my judgment a wise procedure. This procedure differed materially from any theretofore employed in the following respects:

1. A system of nomenclature was set up that seemed in accord with present usage.

2. The arbitrary classification of the subject matter into the three divisions of pharmacy, chemistry and materia medica was discontinued through belief that it is now an obsolete classification.

3. The several outlines were presented alphabetically under a scheme that divided the subjects into two main classes; namely, Professional and Applied Subjects, and Basic Subjects. The first class was outlined in the form of syllabi; the second was simply listed with the stipulation that they must really be basic, not applied, and must be of standard college grade. The subjects in both classes were indicated as "Required" or "Optional," and the number of didactic and of laboratory hours was specifically set forth. The arguments and reasons for this general plan are given in the new Syllabus and need not be repeated here.

4. A new section was created entitled "State Board Examinations" that disregarded so-called "Model State Board Questions" and dealt instead with discussions, suggestions and general information covering the principles of examining candidates for license.

5. The work of revision was not limited to members of the Committee but help was drawn freely from any source that seemed to promise expert and specialized assistance. Every section of the nation was represented in this call for "outside" help. So much for departures from previous customs.

Early in the work of revision it was decided to create an executive committee. A representative from each of the sponsoring bodies, together with the chairman, composed the committee. The AMERICAN PHARMACEUTICAL ASSOCIATION was represented by Dean R. A. Lyman; the Colleges by Dean T. J. Bradley; and the Boards by Mr. A. L. I. Winne. Later, Sub-committee chairmen were named. Prof. E. Fullerton Cook was chosen for Pharmacy subjects; Dr. Glenn L. Jenkins for Chemistry; Dr. H. M. Burlage for subjects that in many catalogs fall under the head of Materia Medica; and Dr. Robert P. Fischelis for Cultural and Basic Subjects. The latter group met together in Baltimore last August for the purpose of examining all outlines and to prepare a formal set of recommendations for the meeting of the entire Committee which was held just prior to the Toronto convention. During a 2-day session at Toronto at which sixteen of the twenty-one members were present, the entire manuscript was studied, the recommendations of the sub-committee were considered, certain additions, deletions and modifications were ordered and final authority was given the Chairman to proceed with several tasks that had to be completed before publication could be started.

Immediately after the Toronto meeting bids were sought from five printers familiar with pharmaceutical terminology. When the bids were opened it was found that the Lord Baltimore Press, of Baltimore, made the lowest and most satisfactory bid and this firm was, therefore, awarded the contract for printing the new edition.

At this point I want to quote the first paragraph of the Preface to the Fourth Edition.

"The Pharmaceutical Syllabus is intended to indicate the subject matter that schools of pharmacy may profitably teach, and to set forth that portion of the subject matter which should be required and that portion which may be looked upon as optional, as well as to indicate the minimum amount of time that should be spent in presenting such material to students. The Syllabus is intended also as a guide to state board examiners in that it indicates the nature and extent of professional and applied knowledge that may have been included in the training of the graduate in pharmacy. The Syllabus is not designed to interfere with such flexibility in courses of study and freedom in methods of instruction as ought to exist in schools of pharmacy but rather its purposes are (1) to present the essentials that should be included in college curricula; (2) to outline subjects of a professional or applied character in such a way as to foster a degree of uniformity which will tend to equalize the training of pharmacists sufficiently to assure their professional capability irrespective of the geographic location of the teaching institution or its educational policy; and (3) to give in the several outlines such attention to detail as will guide boards in framing their examinations. In short, the plan and scope of the work contemplate a series of suggestions and outlines that may serve as a rational basis for instruction and that will afford scientific tests to determine the fitness of applicants seeking license as pharmacists. It is readily apparent that such an effort must invite more or less of compromise. Quite possibly this is not the syllabus that any one person—teacher or examiner—would write, but since it is the well-considered product of a group of earnest and representative pharmacists, teachers and examiners, it is doubtless better balanced and more acceptable than the work of a single mind could be."

The new edition was advertised thoroughly but in spite of this fact only 184 copies have been sold up to this time. Certain reasons may be advanced to explain this small sale. (1) The appearance of the Syllabus after the four-year course had gone into effect; (2) the lowered pur-

chasing power of those to whom the book should offer an appeal; and (3) an apparent lack of interest on the part of college and board members in a book that has no standard rating, no compulsory status, and which has no supporting group that will accept its suggestions and curricula as a part of its working formulas. The last of these reasons is to my mind the most potent one and one that calls forth the following declaration that has no spirit of animus in it:

The Pharmaceutical Syllabus should be given an official status and a limited power to control courses in pharmacy and be given also the active support of its sponsoring bodies, or else it should be discontinued as having no longer a value commensurate with the labor and expense that are involved in every revision. Almost fifty persons gave freely of time, thought and specialized energy to bring the fourth edition into being. If the product of their labor is judged to be inferior, the fault rests squarely upon the chairman who failed properly to coördinate and present the wealth of material that his co-workers submitted. But, and this is the point, even if the fourth edition had measured up to all expectations it still would have been just another book to add to the literature of pharmacy, whereas it should have been officially adopted, in no mere formal sense, as a guide to curriculum building with the understanding that its sponsoring bodies had accepted its suggestions as to what should constitute the minimum hours of required subjects to be taught, together with the principles that should underlie the framing of state board examinations. This is not to say that the Fourth Edition or any subsequent edition should bind any college or any board to follow specifically or entirely the recommendations of the Syllabus, but it is to say that unless the minimum requirements set up in any Syllabus are adhered to and its working principles adopted, such failures should be viewed with disfavor by the bodies responsible for the Syllabus. Either this should be done, or a new chairman appointed, or else no future group of revisionists should be asked to labor in a profitless and thankless undertaking.

I wish in conclusion to say that a financial report is attached hereto, and to express my deep appreciation to the members of the Syllabus Committee for their unstinted support and to those many persons unconnected with the Committee who shared in the labor of revision.

(Signed) J. G. BEARD, *Chairman.*

FINANCIAL REPORT OF J. G. BEARD, CHAIRMAN FROM AUGUST 1, 1932 TO AUGUST 1, 1933.

Receipts.

Cash Balance on Hand Beginning of Year		$ 512
Contribution for 1932 from A. A. C. P.	$50	
Contribution for 1932 from N. A. B. P.	50	
Contribution for 1932 from A. PH. A.	50	150
Sales of 184 Copies of Fourth Edition of Syllabus		373
Total Receipts		$1035

Disbursements.

Traveling Expenses of Sub-Committee Chairmen to Baltimore Meeting:		
E. Fullerton Cook	$ 8.19	
Rob't P. Fischelis	15.68	
Henry M. Burlage	21.95	
J. G. Beard	26.45	
Glenn L. Jenkins	00.00	72.27
Mimeographing Letters and Forms		19.50
Telephone and Telegrams		6.35
Binding Minutes of All Committee Meetings		2.75
Stationery, Forms, Miscellaneous Printing		22.60
Lord Baltimore Press, Printing 1000 Copies of Syllabus and Binding 500 Copies		585.40
Freight on Syllabus Shipment		4.05
Shipping Boxes for Mailing Syllabus and Freight and Drayage		22.18
Printed, Gummed Labels for Mailing Shipments		3.17
Office Supplies for the Year		18.30
Secretarial Assistance over Two-Year Period		60.00

Cost of Copyright on Syllabus, 4th Ed.	2.25
Postage for All Purposes and Insurance Fees	73.00
Total Disbursements	$ 891.82
Cash Balance on Hand August 1, 1933	$ 143.18
Complimentary Copies Mailed to All Members of Committee, to All Authors Who Assisted in the Work of Revision, to the Drug Press, to Copyright Office, to American Council on Education and to Several Foundations Interested in Education	75
Copies Sold	184
Bound Copies on Hand	231
Unbound Copies Held by Lord Baltimore Press for Later Binding	500

ABSTRACTS OF PAPERS OF SCIENTIFIC SECTION, A. PH. A.

"What Is an Important Drug?" by L. K. Darbaker.—In connection with pharmaceutical and medical education a question arose regarding the most important drugs. Pharmacists, teachers, physicians and hospitals, all scattered through the United States were asked to list the fifty drugs they thought were most important. Replies were variable, some covering fifty groups of drugs such as mercury compounds, whereas others listed specific drugs such as mercurous chloride. The first figures in the tabulation, following each drug name represents the votes in terms of percentage from pharmacists and teachers and the second number shows the votes in terms of per cent from physicians and hospitals.

"Some Western Pennsylvania Plants Which Have Been or Are Being Used in Medicine," by L. K. Darbaker.—For many years it has been the custom of the writer to record the names of the Western Pennsylvania plants which have been used in the treatment of disease. This paper represents the summary of this information. Although almost every plant has at some time been used as a medicine, only those plants which have been extensively used are listed. The overlapping of the various flora makes Western Pennsylvania especially rich in plant life; of these many plants 259 are listed as being used medicinally. The first names indicate the botanical source (genus and species), the second is the name under which the plant is or was official or commonly known, and the third is the synonym or common name.

"Further Studies on Psyllium Seed," by Heber W. Youngken.—Plants grown by writer from commercial seed labeled "Spanish Psyllium" were compared with authentic herbarium specimens in the Gray Herbarium of Harvard University, and with descriptions. The identity of the material was traced to *Plantago Psyllium* L. Some French Psyllium seed has been found to be yielded by *Plantago arenaria* W. & K. The distinctions between the plants, flower parts and the swelling factor of the seeds are given.

"A Study of the Constituents of Siam Benzoin in Relation to Their Preservative Action on Lard," William J. Husa and Donald E. Riley.—The present results show that coniferyl benzoate is the constituent of Siam benzoin which reduced the rate of development of rancidity in lard. The other constituents of Siam benzoin, *i. e.*, benzoic acid, siaresinolic acid, cinnamyl benzoate and vanillin have no appreciable preservative effect in the concentrations present in benzoinated lard.

"The Leaves of Pentstemon cobæa, Nutt.," by Loyd E. Harris and Ruth Ann Conner.—*Pentstemon cobæa* Nutt. is commonly known as Beard-tongue, *Cobacea* and *Balmona*. It was found in Arkansas by Nuttall in 1833 and is still widely distributed from Missouri to central Texas. It is of pharmaceutical importance due to the fact that it has been used, principally as a tea, for the prevention and cure of "the chills" in malaria. It is also said that the Chickasaw Indians used it as a cathartic. The experimental work was done on the dried leaves, which is the part of the plant used as medicine. Using a modified Dragendorff method of extraction with selective solvents, the alcohol extract was found to be 16.34 per cent and the water extract 18.89 per cent of the total weight of the leaves. White crystals having a melting point of 163° C. were obtained from the alcohol extract. They did not reduce Fehling's solution before or after hydrolysis. Sulphur, nitrogen and the halogens were not present in the molecule. Infusions and decoctions were prepared and studied.

THE SECTIONS OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

ABSTRACTS OF THE MINUTES OF THE SESSIONS HELD IN MADISON, AUGUST 21 TO SEPTEMBER 2, 1933.

(See also brief summary in reports Final Session, House of Delegates, printed in the October JOURNAL—titles of papers will be given in the minutes; discussions, if any, will be printed when paper is published, if not included in the minutes. The Editor will be thankful for corrections of errors.)

SCIENTIFIC SECTION.

The First Session of the Scientific Section was called to order by Chairman W. J. Husa on Wednesday, August 30th, at 2:00 o'clock. The Chairman requested Vice-Chairman F. E. Bibbins to take the chair while he read his address. The Chairman's Address follows:

THE CHAIRMAN'S ADDRESS.

BY WILLIAM J. HUSA.

Meeting as we are this year in one of the centres of pharmaceutical research and with the spirit of a Century of Progress about us, we have the proper atmosphere and the proper setting for a very successful meeting. In this day every profession worthy of the name must be able to show a consistent development from year to year. Every new fact or principle discovered in the field of pure science may have many important applications. One of the functions of the research man in the professions is to consider new scientific developments from the standpoint of his own field, and to correlate, adapt and develop them into a form in which they can be used by his profession in the service of the human race. For many years our Scientific Section has had a wonderful influence in promoting and diffusing scientific research in pharmacy and I trust that each of you will find here new knowledge and new inspiration.

During the past year, your officers and committees have been actively engaged in looking after the affairs of the Section. On matters coming within their jurisdiction, the officers have taken positive, constructive action, and on other matters recommendations have been brought here for consideration by the Section.

Number of Sessions.—At the Toronto meeting the question was brought up of either adding an extra session of the Section, or holding the meeting in two divisions. Due to the large and increasing number of papers offered, it appeared that something should be done along this line. The proposition of breaking up the section into divisions has certain complications and it was not considered advisable to attempt this without having had definite previous consideration by the Section.

However, the plan of holding an additional session seemed feasible. In some former years, the Scientific Section had three sessions in addition to the joint session with the Section on Practical Pharmacy and Dispensing but for the last three meetings one session was discontinued in order to simplify the general program of the A. PH. A. and to lessen the conflicts with meetings of other sections. Your officers felt that in view of the 103 papers on the 1932 program of this Section, of which 54 were actually read, it was imperative to return to the plan of three sessions plus the joint session. Accordingly, a request for an extra session was placed before the proper authorities of the ASSOCIATION. After correspondence concerning all the factors involved, the request was granted. The extra session has been placed on Thursday morning with the idea that it would be easier to maintain interest if one session each day, from Wednesday to Friday, were devoted to scientific papers, in addition to the joint session on Thursday evening.

Joint Session.—During the negotiations concerning the addition of the extra session, consideration was given to the advisability of breaking up the Joint Session of the Scientific Section and Section on Practical Pharmacy and Dispensing into separate sessions. Although such a move would gain time, it appears that the joint session has a real function to perform, *i. e.*, to make the "scientific" members more practical and the "practical" members more scientific by bringing them together on common problems.

In past years the committee reports at the joint sessions have often taken so much time that it has been necessary to greatly shorten or postpone the papers and illustrated lectures of general interest. The committee reports and discussions have been well worth while, but some limitation of time must be inaugurated and enforced in the interest of orderly procedure.

Recommendation 1.—It is recommended that the maximum time allowed for presentation of committee reports at the Joint Session of the Scientific Section and Section on Practical Pharmacy and Dispensing shall be as follows: U. S. P. Report, 20 minutes, N. F. Report, 15 minutes, other committee reports, 10 minutes; the total time allowed for discussion of each report shall not exceed 10 minutes.

Divisional Meetings.—The congestion of our programs has led to occasional suggestions that the number of papers accepted by the Section be reduced. Some have placed this on the basis of refusing papers having little bearing on pharmacy, while others have suggested that too many papers should not be accepted from one source. While it would be desirable to refuse papers which are definitely outside the scope of our Section, I feel that this principle should be applied with caution. Papers on pure science need not necessarily be rejected provided the research was carried out in pharmaceutical colleges or establishments with the idea of ultimate application to pharmacy; if such papers are driven elsewhere, sometime it will be said that pharmacy has been robbed of credit for work done by pharmacists. The idea of not accepting too many papers from one source is also unsound; by so doing we would be hindering the development of pharmacy.

The additional session which has been granted should do much to relieve the congestion of scientific papers, whose presentation should certainly be encouraged. It would be wise, however, at this time, to make definite plans to be put into effect by the Section officers during any future year when the sessions now provided become inadequate. Since further sessions could hardly be arranged, we must look in the future to the plan of holding simultaneous group meetings. Many have said that they would dislike seeing the Scientific Section broken up into two or more independent sections. As far as I have observed there is no demand and no necessity for such a move. It is entirely practical to continue to function as one section in all matters pertaining to the business affairs of the section, but to break up some of our sessions into two or more divisions for the reading of papers, each division to be presided over by one of the regular section officers. This plan has been successfully used for years by the Division of Physical and Inorganic Chemistry of the American Chemical Society; this division has only two officers, a chairman and a secretary, each of whom presides over one of the group meetings, which are held in adjoining rooms, so that the members may move freely from one group to the other. We should give the officers of the Section authority to break up one or more of the sessions into two or more divisions as may be necessary to accommodate all the papers accepted in any given year. Each year at least one session might be held in which all members would join to hear more important papers or those of more general interest as selected by the officers. Such a plan would be flexible; during the middle of the week when attendance was heavy the divisional meetings could be scheduled, while on Friday, with diminishing attendance, only one program need be provided.

It is provided in Chapter VI, Article I of the By-Laws of the Section that additional sessions may be held when the officers of the Section may see fit, with the consent of the Council.

Recommendation 2.—It is recommended that the officers of the Scientific Section be authorized to make arrangements, in any future year, with the Committee on Standard Program, and Council, for holding one or more of the meetings of the Section in two or more divisions, which would meet simultaneously for the reading of papers classified into groups by the officers, each division to be presided over by a regular officer of the Section.

I feel that the above plan is practical and that it is not only correct in principle but has the necessary flexibility to meet any situation. Whenever desired, one of the group meetings could be devoted to a symposium on one certain topic, merely by proper classification of papers.

Arrangement of Program.—At the Toronto meeting action was taken by the Section requiring authors to indicate whether papers would be presented in person or by title. It is customary to include all papers on the printed program but papers presented by title might well be grouped at the end of the program of the section. Members are requested to coöperate fully with the secretary by indicating in each case how the paper is to be presented. Where a member presents a number of papers, it might be well to read only the more important ones and to designate the rest "by title."

There has been some suggestion that our Section might operate on a definite time schedule, indicating on the program the exact time when each paper is to be presented. This plan is used by some associations and is very advantageous when it works as planned, but 100% coöperation is needed for proper functioning. Under such a plan, it is possible to keep from falling behind schedule by not allowing anyone to exceed the allotted time. When the meeting gets ahead of schedule, the excess time may be used for discussion of any previous paper, thus avoiding the calling of any paper ahead of the scheduled time. Probably our Section is not quite ready for such a plan, but we may work toward it by taking up the papers in the order in which they appear on the program.

For the present year I have favored a plan, to which the secretary has graciously acceded, of putting the papers on the program approximately in order of receipt of the abstracts, thus having some papers at each session from each of the various branches, if they happen to come in that way, but not putting any one person on the program for more than two papers until every one else has been put down for one or two papers. Authors submitting a number of papers were allowed to designate an order of preference; thus the extra papers are placed at the end of the program, to be taken up if time permits. If some papers must be left off on the last day it will tend to be only the less important papers of the prolific contributors. I thought that for any one session, the papers might be classified somewhat, but we would have each day a little more variety which might stimulate interest and hold attention. In this way, a person who can only be present at the Wednesday session can hear some papers in each field, while if all the papers were outside the field of such a person, he might not even stay for Wednesday.

Manner of Presentation.—Another matter which was left with the officers was the suggestion that authors often attempt to give too many details in the time allowed, leading to a hasty presentation in which important points are obscured. In the notices calling for papers, the officers mentioned this matter and suggested that the following method of presentation be followed as far as possible:

(*a*) A brief statement as to purpose and scope of investigation.

(*b*) A statement of general methods, omitting details except those of particular importance.

(*c*) General statement of results and conclusions.

If the Section wishes to continue this plan after this year's trial, appropriate action should be taken.

Suggestions to Authors.—You are probably aware that for financial reasons it has been necessary for the ASSOCIATION to make some reduction in the number of pages in the JOURNAL for 1933. Authors of papers should coöperate during this emergency by striving to develop a condensed style. In some cases space can be saved by publishing typical data in full with the remainder in summarized form; in other cases less space need be given to negative results, preliminary results and duplications of previous work. Reviews of earlier work may be largely omitted in cases where adequate summaries are already easily accessible. We should coöperate with the editor by cutting down the length of articles wherever possible; this does not refer only to long papers, since we know that a short paper with little in it might be a better target for the pruning knife than a longer article based on a great deal of research.

Regardless of whether a paper is presented in person or by title, the complete paper should be in the hands of the secretary at the time of the meeting. I am informed that quite a number of papers which appear on our printed program are not turned in until several months or more after the meeting. Of course this could be prevented by requiring that all papers in completed form be in the hands of the secretary before the list is drawn up for the printed program. I hesitate to make such a recommendation because it would cause inconvenience to many authors who have never been at fault in this respect. I prefer to appeal to the members to always see that their papers are in the hands of the secretary at the time of the meeting. If this appeal does not largely eliminate this condition the Section may later well consider restrictive measures which would apply only to those who show themselves to be chronic offenders in this respect.

I feel that some of the research work reported before our Section would be very suggestive and very helpful to physicians. In some cases the conclusions go as far as the pharmaceutical research worker can go without encroaching on the medical field, and if the results were made available to physicians and medical research workers it would often give them a point of departure

for medical research. It has seemed to me that as a whole the medical profession is uninformed and unappreciative of the commendable research program of pharmacy. The average physician does not hear of any pharmaceutical research except through the detail men. One reason for this situation is that the JOURNAL OF THE A. PH. A. does not appear on the list of journals abstracted by the *Journal of the American Medical Association*. On one occasion I received a number of requests for reprints of one of my papers from medical men who happened to see the article or hear of it. This led me to take up the question with Dr. Fishbein, Editor of the *Journal of the American Medical Association*, as to whether his journal would not be rendering a useful service to medicine by including brief abstracts of such pharmaceutical articles as were deemed of value by the medical abstractors. Dr. Fishbein replied that it did not seem possible for them to undertake to list each issue of our JOURNAL and abstract all the articles but that they would be glad to abstract or comment on occasional contributions from our JOURNAL and he added that he would publish an abstract of the article which I had sent him as an example. These considerations lead me to suggest that members make it a point to send reprints of such of their papers as clearly have medical applications to medical journals; some of these may be abstracted, thus aiding in making a start in placing pharmaceutical research properly before the medical profession.

Suggestions to Association in Publication Matters.—The best means of maintaining and increasing the professional standing of pharmacy is an active research program. However, research loses much of its value if facilities are not available for prompt and adequate publication. People sometimes view publication too much from the standpoint that the author may be seeking publication for selfish reasons. On one occasion a noted Italian investigator isolated certain constituents from a drug and announced his discoveries in a prominent European journal. A little later another worker came forth with a claim to priority, indicating that he had previously published the same results in an obscure Scandinavian periodical. In acknowledging priority, the Italian said that not self love, but love for his colleagues, should cause the research man to publish his important results in a journal of general circulation.

The publication program of our ASSOCIATION must keep pace with our scientific and professional progress, and some method should be found to release the brakes of financial recession. If the regular sources of ASSOCIATION funds are insufficient, consideration might well be given to securing assistance by special endowments and by contributions from pharmaceutical manufacturers. It would be to the interest of pharmaceutical industry to support the publication of scientific pharmaceutical articles. We know that manufacturing is shifting from tinctures, fluidextracts, elixirs, etc., to specialties, and if the distribution of specialties is not to degenerate to a patent medicine level, everything possible must be done to maintain pharmacy on a high professional level, and nothing will contribute as much to this end as a strong program of research and publication.

Recommendation 3.—Since the best means of maintaining and increasing the professional standing of pharmacy is an active research program, which necessitates adequate facilities for publication, it is recommended that the Council consider the advisability of seeking contributions from pharmaceutical manufacturers and special endowments to support an adequate publication program for the increasing scientific and professional contributions of our ASSOCIATION.

In 1932 there were 1362 pages of text in our JOURNAL and among the other pages devoted to advertising and other material I find that about 110 pages were devoted to publishing the monthly list of officers and committees of the ASSOCIATION and its sections, and of state boards of pharmacy, other associations, etc. The use of 110 pages for printing the same list from month to month hardly seems justified; the space could well be used for other purposes.

Recommendation 4.—Since during 1932 about 110 pages in the JOURNAL OF THE A. PH. A. were devoted to publication of names of officers and committees of various organizations, it is recommended that the Council consider the advisability of saving space by publishing the names of only the main officers of the ASSOCIATION and sections each month, with the remainder of the names to be published only two or three times a year on a rotating schedule, with a note each month referring to previous issues for lists of other officers and committees.

Under the rules, Recommendations 3 and 4, if adopted by this Section, should be referred to the House of Delegates, which in turn is to refer them to the Council.

In closing I wish to express my thanks to every one who aided the Section during the year and particularly to acknowledge the kind coöperation of Secretary L. W. Rowe and First

Vice-Chairman F. E. Bibbins of our Section and Secretary E. F. Kelly of the ASSOCIATION. I also wish to thank the members for the honor conferred on me by electing me chairman of the Section; it has been a pleasure to serve you.

Following the usual order, Vice-Chairman Bibbins appointed the following Committee on the President's address: *Chairman*, J. C. Krantz, Jr., George D. Beal and G. L. Webster.

THE SECRETARY'S REPORT.

BY L. W. ROWE.

Members of the Scientific Section, American Pharmaceutical Association:

This year it was deemed wise to send out but one general notice to the nearly 300 names on the mailing list of the Scientific Section and this was done early in February: The response as you can see by the listing of nearly 100 titles on the printed program was very good—perhaps too good for the time at our disposal. We were able to obtain permission to hold an extra session of the Section this year and that will materially help our situation.

The coöperation of the members and particularly of the other officers of the Section has been very helpful and is greatly appreciated.

Respectfully submitted,
L. W. ROWE, *Secretary.*

Chairman Husa called for the Report of the Committee on Monographs. It was read by Chairman E. E. Swanson. (Printed on page 1196.)

The Report of the Board of Review of Papers was called for. Secretary Rowe made a brief report stating that progress was being made and he felt that with coöperation further advance will be made.

Chairman Husa appointed the following Committee on Nominations: *Chairman*, E. D. Davy, E. E. Swanson, F. F. Berg.

No further committees reported at this time.

Chairman Husa announced as the next order of business the reading of papers. He requested that on account of the large number of papers that anyone desiring to discuss the paper should rise promptly and have the discussion as brief as possible.

The following papers were presented:

"A Modified Assay Process for Alkali Benzoates and Salicylates," by Jacob E. Schmidt and John C. Krantz, Jr. (No discussion.) Printed in October JOURNAL, page 953.

"Isolation and Identification of Sucrose from Senega," by Ralph Bienfang, read by Loyd E. Harris. (No discussion.)

"The Gravimetric and Volumetric Determination of Antipyrine as Hydroferrocyanide in the Presence of Amidopyrine," by I. M. Kolthoff. (No discussion.) Printed in the October JOURNAL, page 947.

"The Gravimetric and Volumetric Determination of Brucine and Strychnine as Dichromate," by I. M. Kolthoff. (No discussion.)

"The Determination of Strychnine and Brucine as Hydroferrocyanides and Their Separation by Means of Ferrocyanide," by I. M. Kolthoff. (No discussion.)

The three foregoing papers were presented by Charles V. Netz.

"The Barbituric Acid Derivatives as Drugs," by J. H. Graham. (No discussion.)

"Tincture of Digitalis," by L. W. Rowe and W. L. Scoville. (No discussion.)

The following papers were presented by title:

"Two Species of Genus Ledum," by Russell A. Cain and E. V. Lynn.

"What Is an Important Drug?" by L. K. Darbaker.

"Some Plants of Western Pennsylvania Which Have Been Used in Medicine," by L. K. Darbaker.

"Some Poisonous Plants of Western Pennsylvania," by L. K. Darbaker.

"The Micro Projector," by L. K. Darbaker and Samuel H. Oswald, Jr.

The following paper, "Licorice Fern and Wild Licorice and Substitutes for Licorice," by Louis Fischer and E. V. Lynn, was read by E. V. Lynn. (No discussion.)

"Detection of Small Quantities of Carbon Monoxide in Medicinal Oxygen," by Jacob E. Schmidt and John C. Krantz, Jr.

Arthur Osol inquired whether Dr. Krantz had used palladium chloride for the detection of carbon monoxide. In its application a paper is impregnated with palladium chloride—the presence of carbon monoxide causes reduction.

The author stated that the latest chloride method is that of the British Pharmacopœia but that he had not found it as sensitive as the method described.

The next paper, "Further Studies on Psyllium Seed," was read by Heber W. Youngken (No discussion.)

L. W. Rowe presented a paper on "Fluidextract of Ergot," by L. W. Rowe and W. L. Scoville. (The paper is printed in the October issue, page 938.)

The paper on "The Hyperglycemic Action of Forty Amines," by Robert C. Anderson and K. K. Chen, was read by Robert C. Anderson.

The following papers were read:

"The Value of Senecio in Medicine," by Edgar A. Kelly and E. V. Lynn. (No discussion.)

"A Study of the Constituents of Siam Benzoin in Relation to Their Preservation Action on Lard," by William J. Husa and Donald E. Riley. (No discussion.)

"The Leaves of Pentstemon Cobæa, Nutt.," by Loyd E. Harris and Ruth Ann Conner. (No discussion.)

The following paper was read by the author: "A Comparative Study of the Maryland and the Official Sennas," by Frank J. Slama.

Heber W. Youngken, after inquiring about some of the characteristics, said that the paper was a very good one, offering some excellent facts in segregating the genus, however, he was not certain that sufficient differential characteristics had been brought out to make a new genus of the group. The author stated that this was only a suggestion. Dr. Youngken said the author had made a valuable contribution in morphology, which is bound to help the taxonomy. The author stated that this was only the first part of the work and he had obtained some gratifying results. In the second part the author is working on the whole plant, he is studying cross sections of all parts of the plant.

The next paper called for was on "A Comparative Study of Five Assay Procedures for Opium," by A. R. Bliss, Jr., E. D. Davy, Joseph Rosin, W. H. Blome, R. I. Grantham and R. W. Morrison. (The paper was not read.)

The next paper was on "The Water Content of Magnesium Oxide," by Jacob E. Schmidt and John C. Krantz, Jr. (No discussion.)

The following papers were presented by James C. Munch:

"Antidotes I. General Plan," by F. E. Carlough and James C. Munch; "Antidotes II. Barbituric Acid Compounds as Antidotes for Strychnine Poisoning," by D. A. Spencer and J. C. Ward; "Antidotes III. The Present Status of an Antidote for Thallium Poisoning," by James C. Munch, J. C. Ward and F. E. Garlough.

Wm. Gray inquired what importance Dr. Munch placed on catheterization of strychnine. The author replied that as far as effect on humans is concerned it was valuable, but in so far as the effect on animals is concerned it is impracticable because, when called in, the animal is about ready to die. Catheterization by gastric cavage is useful but too slow.

The next paper was on "The 'Co-Fe-Cu' Fluids as Applied to U. S. P. Tests," by H. V. Arny and A. Taub. (No discussion.) Published in October JOURNAL, pages 956–961.

The next paper, "The Colorimetric and Electrometric p_H Determination of Solutions of Certain Alkaloidal Salts," by Allen F. Peters and Arthur Osol. (No discussion.)

Chairman Husa announced that the next session of the Scientific Section would convene promptly at 9:00 o'clock in the Pompeian Room instead of in the Crystal Room.

This completed the First Session of the Scientific Section.

SECOND SESSION.

The Second Session of the Scientific Section was convened by Chairman W. J. Husa, Thursday, August 31st, at 9:00 o'clock. The first three papers, "Tincture of Stramonium Seed Free from 'Plant Dirt,'" by Ralph Clark and Edward Kremers; "Percolation Studies, Continued," by M. Wruble and Edward Kremers; "The Percolation of Drugs Mixed with Calcium

Hydroxide," by M. Wruble and Edward Kremers, were announced by Ralph W. Clark as not ready for presentation.

The next paper, "A Study of *Impatiens* Species and Their Pharmaceutical Preparations in the Treatment of Poison Ivy Poisoning," by C. H. Rogers, was not submitted.

The authors of the next two papers, "The Volatile Oil of Chrysanthemum Balsamita," by Ralph Voigt and E. B. Fischer; and "A Camphor-Like Constituent of Balsamita Vulgaris," E. B. Fischer were not present for presentation of their papers.

The next paper on the program, "The Standardization of Ergot, a Comparison of the British Pharmacopœia Assay for Extractum Ergotæ Liquidum with the Modified Smith Colorimetric Assay," by Asa N. Stevens, was presented by the author. (It is printed in the October JOURNAL, page 940.) It was discussed by Messrs. James C. Munch, G. L. Webster, S. H. Culter, F. O. Taylor and the author.

Replying to James C. Munch, the author stated that ergotoxine ethanesulphonate and ergotamine tartrate are identical in color value. Theoretically there is a difference in the relative amount of base present in each salt. However, in making these determinations, it has been found that their color values are the same.

In reply to G. H. Webster, the author explained that Table I, of the paper, gives the results from ten determinations while Table II contains the results from more. Individual determinations vary from zero to twenty per cent. A great many more determinations have been made while comparing various colorimetric methods with the Broom and Clark and the Cock's Comb Methods of Assay.

Between four and five hundred assays were made during the last three years.

Mr. Stevens said further, "no superiority has been claimed for the modified Smith Colorimetric Method. Furthermore, the results have not been selected. The fact that nearly five hundred determinations have been made was mentioned in order to show that a considerable amount of experience has served as the basis for this work.

S. H. Cultur inquired whether the author used a catalyzer in producing color?

Mr. Stevens replied that no catalyzer of any sort has been used. Sunlight was the only source of light although the carbon arc has been found to work equally as well. In replying to F. O. Taylor, the author said, "On dark cloudy days it is necessary to allow for an exposure of from four to six hours. However, this delay may be avoided by the use of the carbon arc on days when the sun is not shining."

Dr. Munch said, "If I am not too optimistic, then I might conclude that the various methods of chemical assay have no advantage over the much maligned Cock's Comb Method."

The next paper on "The Stability of Tissue Extract," by James C. Munch and Arnold Quici, was presented by James C. Munch.

E. V. Lynn inquired whether the author had any idea what is contained in tissue extract that causes this effect, either as specific substances, or as classes of substances. He also asked how this compared with the action of histamine and of acetyl choline.

In response Dr. Munch stated "The theory which has been developed and reported at the International Physiology Congress in Rome: Just as the cells of the suprarenal gland continually secrete epinephrine, which is poured into the blood stream and stimulated the sympathetic system, so the cells of the pancreas produce this hormone constantly stimulating the parasympathetic system. The blood pressure and muscle tonus at any given moment are due to the relative balance between epinephrine and tissue extract. Tissue extract coming from the pancreas circulates in the blood stream to the heart and voluntary muscles and the tissues, and eventually it is excreted in the urine.

The paper entitled, "The Pigeon as a Hematopoietic Test Animal," by Wm. A. Peabody and R. C. Neale, was presented by W. G. Crockett. James C. Munch thought this a most interesting report, being the latest of the bioassays. He stated that Dr. C. W. Edmunds had been studying the method intensively with a view to suggesting or for consideration in the U. S. Pharmacopœia.

The next paper was on "An Assay of Hyoscyamus," by Marval D. Evans and Edward D. Davy.

H. G. DeKay stated that they had been working with this assay of hyoscyamus for about $2^1/_2$ years. They had carried on a long series of experiments with the pure alkaloids and these results verify those of Professor Davy.

"Notes on the B. P. Colorimetric Test for Ergot," by F. A. Upsher Smith, was called for. James C. Munch stated that in the series of samples now being distributed by the Association of Official Agricultural Chemists for comparison of colorimetric assays they have provided a color standard. He inquired of the author of the paper whether he knew of it. He did not, and A. N. Stevens stated that the Association of Official Agricultural Chemists had a color standard but he could not recall the name. Mr. Glycart, associate referee in Chicago, has a blue color standard which he submitted to some laboratories for consideration and experimental work.

The following two papers were presented by James C. Munch: "Alkaloidal Reagents V. Dragendorff Reagent," by Frank C. Crossley, James C. Munch, Walter H. Hartung and Harry J. Pratt.

"Alkaloidal Reagents VI. The Aconite Alkaloids," by James C. Munch, Harry J. Pratt, Walter H. Hartung and Frank C. Crossley.

Dr. Munch said, "Several years ago, the late Herman Engelhardt started with 250 Gm. of chemically pure aconitine. He hydrolyzed it to benzoylaconine and part of that to aconine. Some of these materials from his original work were obtained for toxicity tests."

"Standards for Tincture Digitalis with Special Reference to U. S. P. X and B. P. 1932 Standards," by L. W. Rowe, was presented by the author.

ABSTRACT OF DISCUSSION.

James C. Munch expressed faith in ouabain as the digitalis standard. His experience with the leaf had been unfortunate. He reported that the Canadian government laboratory was collaborating with the A. PH. A. committee in tests of tincture digitalis but their results were somewhat higher than his.

E. V. Lynn asked whether anyone else had found undefatted digitalis more active than the defatted leaf and if so what is the explanation?

The author explained that assay results on tinctures from undefatted leaves were more definite and only tended to be higher. Inability to find activity in extracted fats made an explanation of such results more difficult.

Upsher Smith spoke at some length of work done by Dr. Van Dyke of Chicago University which entirely confirmed the results reported in this paper. He referred to the defatting of digitalis as an unnecessary procedure which was not now favored by either the pharmaceutical or the medical profession. Dr. Smith then said that his interest had been aroused in Apocynum by Dr. Burn of England and he had planted about an acre of it. The roots go very deep and also spread rapidly. He submitted a sample of the root to Dr. Burn who reported that 29 mg. was equivalent to 1 International Unit, making it about $3^1/_2$ times as active as digitalis, yet the clinical dose is about 15 grains as compared to $1^1/_2$ grains for digitalis. He closed with a plea for the adoption of the International Standard Leaf for digitalis to replace the present U. S. P. ouabain.

James C. Munch took up the defense of ouabain, stating that Dr. Burn had never made a U. S. P. test of digitalis. Granting that there are certain pharmacodynamic differences between ouabain and digitalis, the same differences exist between apocynum and digitalis. Some electrocardiographic work he had done indicated that apocynum was about twice as potent as digitalis on the human. One objection to digitalis leaf as a standard is that it must be extracted before its use, whereas ouabain can be used as such.

"Assay for the Vitamin B. Complex in the Presence of Interfering Substances," Lloyd K. Riggs, B. J. G. Chiego, L. W. Sampson and Annabel Beaty.—The paper was presented in abstract by Robert W. Rodman.

George D. Beal presented four papers:

"A New Identity Test for Phenobarbital," by George D. Beal and Chester R. Szalkowski; "Notes on the Water of Crystallization of Quinine Sulphate," by George D. Beal and Chester R. Szalkowski; "An Iodimetric Assay for Organic Nitrites," by George D. Beal and Chester R. Szalkowski; "A Test for Gelatin in Agar," by George D. Beal and Chester R. Szalkowski. These were discussed by C. Jelleff Carr, George L. Webster and the author.

The following papers were read by title:

"The Standardization of Digitalis," by A. John Schwarz.

"A Study of the Acrylic Amides and Ureides as Hypnotics," by W. A. Lott and W. G. Christiansen.

"The Preparation and Germicidal Properties of Some Alkyl Derivatives of Hydroxy Diphenyls," by S. E. Harris and W. G. Christiansen.

"Piperazine Derivatives as Local Anesthetics," by W. Braker and W. G. Christiansen.

"Cod Liver Oil: Stability of Vitamin A Content under Conditions of Commercial Distribution," by George E. Éwe.

"Medicinal Cod Liver Oil—Observations on Color and Viscosity," by George E. Éwe.

"The Effect of Ethylene Glycol on the Serum Calcium of the Rabbit," by James M. Dille.

The authors of the paper on "The Arsenic Content of Chondrus," by Charles H. LaWall and Joseph W. E. Harrison were not present.

The following paper was read by the author, "Pancreatin and Its Assay," by F. E. Willson.

The Second Session of the Scientific Section was then adjourned after Chairman Husa announced the meeting for 8:00 o'clock.

JOINT SESSION SCIENTIFIC SECTION AND SECTION ON PRACTICAL PHARMACY AND DISPENSING.

The Joint Session of the Scientific Section and the Section on Practical Pharmacy and Dispensing was called to order by Chairman W. J. Husa, August 31st at 8:00 P.M. Marvin J. Andrews presided as co-chairman.

Chairman Husa stated that twenty minutes would be allowed for the U. S. P. report, fifteen minutes on the N. F. and ten minutes on other Committee reports. There would be brief discussion. He stated further that after these reports were concluded there were two papers to be presented which were of interest to the Joint Session.

The report on the United States Pharmacopœia was called for.

In his preliminary remarks Chairman E. F. Cook stated that it has been a traditional privilege for the Chairman of the Revision Committee to report to this body annually. Sympathetic understanding and whole-hearted coöperation of the A. PH. A. is important. The Chairman read his report, in abstract:

THE UNITED STATES PHARMACOPŒIA.

BY E. FULLERTON COOK, CHAIRMAN OF THE U. S. P. XI, COMMITTEE OF REVISION.

THE PROGRESS OF THE REVISION.

The Eleventh Revision is progressing normally and the interest and energy of most of the members of the Committee of Revision are such that the best traditions of the U. S. P. are being fully maintained.

In this day of change and economic pressure it speaks well for the underlying principles of the Pharmacopœial organization that the Revision has proceeded without reduction in activity or modification of program.

THE SCOPE OF THE U. S. P. XI.

Since announcing the proposed additions and "deletions" at this meeting a year ago many communications have been received from physicians and pharmacists, some approving and others opposing the recommendations. These have all been placed in full before the General Committee of Revision and referred to the Sub-Committee on Scope.

For the information of those who may be especially interested in this problem, all of these comments have been assembled under the official titles and pasted in a scrap book and this will be on display at the Pharmacopœial Exhibit throughout the week. The results of the "Prescription Ingredient Survey," prepared under the direction of Professor Gathercoal, has also been of value in reaching final decisions.

As the objective toward which to strive, the General Chairman recently sent the following statement to the members of the Sub-Committee on Scope and repeated it to the entire Committee at the Conference held last June:

> "The *Scope* of the U. S. P., from the viewpoint of 'therapeutic usefulness,' does, however, become one of the most important factors in the U. S. P. Revision, and it is this grave responsibility which the Sub-Committee on Scope assumes. De-

pendent upon the decisions on Scope largely rests the success of the Revision. It is assumed that there are before the members of the Sub-Committee the vast array of known therapeutic agents resulting from centuries of emperic medicine and the more recent scientific studies into the clinical and pharmacologic value of drugs. From these thousands of drugs, chemicals and preparations, this group is asked to select 'drugs and medicines of therapeutic usefulness or pharmaceutic necessity, sufficiently used in medical practice within the United States or its possessions.'

"Our new Pharmacopœia should therefore include those therapeutic agents which the consensus of medical opinion of to-day accepts as of the greatest value and should represent a wide field of application so that, theoretically there should be no justification for any physician to step outside the list of U. S. P. XI basic drugs for any treatment of disease which he may be called upon to render. Furthermore, the Pharmacopœial Scope should be such that *every medical school would naturally and properly use the Pharmacopœia as the basis of its teaching,* so far as treatment is concerned, so that the physicians of the country would think primarily of official titles and medicines when prescribing. Its completeness as to scope and efficiency should also be such that in hospital practice few other than official drugs should be employed."

A most earnest and conscientious effort has been made to reach this ideal and when the final list is published it will be accompanied by an explanation, prepared by the members of the Scope Sub-Committee, that all may know the reasons for the more important decisions.

INTERIM REVISION.

At the last four decennial U. S. P. Conventions, authority has been granted for the issuance of "Supplements" to the Pharmacopœia. The 1930 Convention approved the following:

> "It is recommended that the Committee of Revision be authorized to prepare supplements to the Pharmacopœia, or lists of admissions or changes at any time they may deem such action desirable."

Under the authorization of the 1900 Convention, several supplements were issued immediately following the passage of the Food and Drugs Act—in 1906. Another "Supplement" was prepared to meet conditions arising from the World War, but the unexpected ending of the War made its issuance unnecessary.

The rapid development of the knowledge of vitamins, affecting Cod Liver Oil Standards, and the extensive studies here and abroad, dealing with the drug, Ergot, have made changes in these texts desirable. The Ergot revision has already been released and the Cod Liver Oil Text is assured within a few weeks.

A third "Interim Revision Announcement" will also be issued within a few months covering a number of minor changes which have long been recognized as desirable, and were in line for change in the U. S. P. XI, but, as an aid to the enforcement of standards under the Food and Drugs Act, will be announced now without waiting for the appearance of the new Pharmacopœia.

THE NEW COD LIVER OIL STANDARDS.

Entirely unforseen conditions made it necessary for extensive developments in Pharmacopœia activities in the field of vitamins. The need for standards for Vitamins A and D, the establishment of International standards for these and other vitamins and the necessity for the U. S. P. meeting this situation, have been responsible for the setting up of a U. S. P. "Vitamin Advisory Board," the organization of a group of laboratories to assist in the development of satisfactory vitamin assay methods and the determination of the Vitamins A and D potency of a special "Reference Cod Liver Oil." This will be distributed in the United States as the official standard of comparison in assaying new Vitamin A or Vitamin D-containing products, both medicines and foods.

In this program, the Pharmacopœia is working closely with the Food and Drug Administration and Dr. Nelson, Director of the Government Vitamin Laboratory, is a member of the new U. S. P. Vitamin Board.

We are undertaking a new and difficult program in attempting to coördinate the bio-assay

results of seventeen vitamin laboratories, all using the new U. S. P. assay method for Vitamins A and D, but the willingness of the vitamin experts of the United States to assist has been a remarkable tribute to the authority and acceptability of the Pharmacopœia and to the liberality of participating groups. Unfortunately, the cost of a vitamin assay is large, and without such extensive help from established laboratories this program would be impossible. The Board of Trustees is meeting the cost in two laboratories, but all other check tests have been offered without expense to the U. S. P.

A SUGGESTED DEVELOPMENT IN THE "INTERIM REVISION" OF THE PHARMACOPŒIA.

It seems to be generally conceded that for the Pharmacopœia to fully meet the increased demands placed upon it, there should be the revision of texts whenever the need for a change is demonstrated, through newly developed scientific facts. Also it is recognized that, without waiting for the decennial period, some newly developed therapeutic agents should find their place in the official standard. Ephedrine and its salts and some of their solutions, also Liver Extract, are illustrations.

The objection to "Interim Revisions" has been chiefly the difficulty of giving the change the needed publicity and permanent form. To meet this situation it is now proposed that, as changes are made after the appearance of the U. S. P. XI, they be announced in the medical and pharmaceutical press to become official on January 1st of the following year. Then, on the first of each year, a printed supplement to the U. S. P. XI shall be issued, uniform in size with the original volume, with each succeeding "supplement" carrying an index covering all preceding "Supplements." To increase the practicability of this plan it is suggested that a spring binder be supplied for these "Supplements," the size and appearance being uniform with the original volume. Perhaps at the end of five years the original U. S. P. XI could be reprinted with all supplements included. Another feature will be the inclusion in the back of the U. S. P. XI of a page of coupons. The owner of a book will thus be given the opportunity of filling out the coupon for any of the subsequent annual supplements and obtaining it from the publishers at a nominal price to cover the cost.

If properly carried out this plan will keep the Pharmacopœial text and contents in accord with changing and developing medical science and render it more valuable and useful. This general plan has received the approval of both the members of the U. S. P. Committee of Revision and Board of Trustees.

THE PHARMACOPŒIA WILL ESTABLISH AN OFFICIAL METHOD FOR PREPARING PERCENTAGE SOLUTIONS.

The correct method for preparing a percentage solution for medicinal use has long been in dispute. Some authorities have always insisted upon using the "Weight-weight" (w/w) method as the only correct procedure. Others have argued with equal insistence that the "Weight-volume" (w/v) method was the only practical plan. The new British Pharmacopœia has led the way to make the practice in drug stores uniform by prescribing an official method as follows:

"*Percentage Solutions.*

"In defining standards, the expression 'per cent' is used according to circumstances with one of three different meanings. In order that the meaning to be attached to the expression in each instance may be clear, the following notation, which has long been in use by pharmacists, has been adopted.

"*Per cent w/w, percentage, weight in weight*, expresses the number of grammes of active substance in 100 grammes of product.

"*Per cent w/v, percentage, weight in volume*, expresses the number of grammes of active substance in 100 millilitres of product.

"*Per cent v/v, percentage, volume in volume*, expresses the number of millilitres of active substance in 100 millilitres of product.

"The strengths of solutions of solids in liquids are expressed as percentage weight in volume, of liquids in liquids as percentage volume in volume, and of gases in liquids as percentage weight in weight.

. . . . . .

"In the dispensing of prescriptions, when the expression 'per cent' is used

without qualification, it is to be interpreted to mean, for solutions of solids in liquids, per cent weight in volume, for solutions of liquids in liquids, per cent volume in volume, for solutions of gases in liquids, per cent weight in weight. Thus, a '10 per cent' or a '1 in 10' solution is prepared by dissolving 10 grammes of a solid, or 10 millilitres of a liquid, in sufficient of the solvent to make 100 millilitres. A solution of the same strength may be prepared on the Imperial System, and on the Apothecaries' System, by dissolving 44 grains (more precisely 43.847 grains) of a solid, or 48 minims of a liquid, in sufficient of the solvent to make 1 fluidounce (480 minims) of solution."

Our own Committee of Revision, after discussion, voted at the recent Conference to introduce a similar paragraph in the new Pharmacopœia.

THE REVISION OF THE FOOD AND DRUGS ACT IN ITS RELATION TO THE U. S. P.

No one can now predict the final form in which the rewritten Federal Food and Drugs Act may be passed by Congress or when that may occur, but it is of the utmost importance to the work of our Committee and to the future of the United States Pharmacopœia that it should retain essentially the status proposed in the first draft offered to Congress by the Secretary of Agriculture, and introduced into both the Senate and the House.

The added recognition of Pharmacopœia standards, covering as it does the U. S. P. and N. F. definitions, descriptions, formulas, tests, assays and the packaging and labeling specifications, places greatly increased responsibility upon the decisions of the U. S. P. Revision Committee.

The "variation clause" is retained to meet the legitimate need for modifications in official products, such as the demand for a "Half-Strength or Double-Strength Ointment of Mercuric Oxide," "Half-Strength Tincture of Iodine," etc., and to allow the sale of products of technical grade and also to permit the sale of established preparations differing in flavor, color or strength from the official. However, the new requirement will compel a labeling which clearly indicates wherein the unofficial product differs in strength, quality and purity from the specifications of the Pharmacopœia or National Formulary. This has not been a part of the law heretofore.

The feature which authorizes the Secretary to prescribe additional tests or assay methods to determine whether or not the official standards are being complied with, should it be found necessary, is entirely new. This, however, greatly strengthens the position of the Pharmacopœia, for no vital objective or responsibility of our Committee is disturbed and the enforcement of the necessary standards, which our Committee have established, is helped. The first duty of the Committee of Revision is to decide the scope of the new Pharmacopœia, that it may represent the therapeutic agents of the day believed to be worthy of recognition. This duty remains exclusively in our hands.

The second responsibility of our Committee is to establish the quality and purity of these medicinal products to insure their being efficient, uniform and safe. This still remains as our exclusive job.

A third important feature of revision is the establishment of tests and assay methods whereby it can be proven that the products offered for sale and used in dispensing, when official titles or synonyms are written, meet the standard specified.

All who believe in our Pharmacopœia will desire to maintain these standards and if added tests can help in doing so, we must welcome that assistance. At this point, however, comes in the program of "Interim Revision," as an essential feature, for it is expected that the Revision Committee hereafter will quickly recognize the need for modifying obsolete standards, tests or assays and by making the revised texts official by "Interim Revision" the necessity for any such Secretarial action, except in extreme emergency, will be avoided.

The existence of such authority will also stimulate the Committee of Revision in its work and insure a close coöperation between the Committee and the enforcement officials.

EXTENDING PHARMACOPŒIAL INFORMATION.

The new booklet, on the Use of Pharmacopœial Substances by prescribing physicians, prepared for distribution at the American Medical Association Convention this year, is also offered to AMERICAN PHARMACEUTICAL ASSOCIATION members at the U. S. P. Exhibit in this Hotel. This booklet, through requests from the Deans, has also been placed in the hands of this year's medical graduates, 4624 in number, and in 54 Colleges of Medicine throughout the United States.

A Pharmacopœial Exhibit has also been placed at the World's Fair in Chicago and we have also again had opportunity to present the Pharmacopœia in the Scientific Section of the American Medical Association Annual Exhibition, the School of Pharmacy of the University of Wisconsin assuming responsibility for it. There have also been numerous inquiries from hospitals for help in the installation of a program for restricting the hospital dispensing to U. S. P. and N. F. medicinals. In a number of cities and states, active programs are being conducted by National or Local Pharmaceutical Associations, while the Philadelphia County Medical Association has asked for a monthly exhibit of official products, with suitable literature, for their Headquarters Building.

Apparently there has never before been so much interest in U. S. P. products, from professional sources.

When the new Pharmacopœia appears this program should be greatly extended but only along the most ethical and professional lines. It is hoped that the suggestion to issue monthly articles on the therapeutic application of official medicinals, for publication in the medical journals and later reprinting in booklet form, may be carried out. The younger physician, particularly, would welcome specific suggestions for prescription combination or methods of using these standard and established products.

THE PHARMACOPŒIAL SECTION OF THE PAN-AMERICAN MEDICAL ASSOCIATION.

The U. S. P. Committee of Revision was very fortunate in having Professor T. J. Bradley voluntarily represent the Committee at the meeting held in Dallas, Texas, March 21st to 25th. It may be a surprise to many to learn that there were over one thousand physicians at this meeting. There seems to be an unusual opportunity for Pan-American medical standards to be coordinated through this movement and American Pharmacy should plan to participate in the next meeting to be held in two years.

THE INTERNATIONAL STANDARD FOR THE ŒSTRUS-PRODUCING HORMONE.

While the Pharmacopœia has not yet recognized or admitted a representative of the œstrus-producing hormone now available commercially from a number of pharmaceutical laboratories, the Board of Trustees, at its recent meeting, authorized the distribution of the "International Standard" for this product through the office of the Chairman of the Committee of Revision. This action is in harmony with the broadening service which our Pharmacopœial organization is rendering to the medical and pharmaceutical professions in this country; the distribution of the International Standards for Vitamins A, D and B_1 having previously been approved. Already, many of the Vitamin Standards have been distributed in this country.

In the published announcements with respect to vitamin standards, the Vitamin Laboratory of the Bureau of Chemistry and Soils of the Department of Agriculture and the Board of Trustees of the U. S. Pharmacopœia have both been named as distributing centers. In the case of this new International Standard, just issued by the Permanent Commission on Biological Standards of the Health Organization of the League of Nations, through Sir Henry Dale of the National Institute for Medical Research in London, neither the National Institute of Health nor the Food and Drug Administration at Washington, has been in a position to undertake its distribution and they have recommended that the Pharmacopœia assume this added service.

These standards have not yet been received from London, but, as soon as they are available, there will be an announcement sent to those who are now carrying out researches in this field and also those who are manufacturing commercial products.

This service of the Health Section of the League of Nations should materially assist in establishing a degree of uniformity in the potency of the products of this character now available since they, no doubt, will be evaluated upon the basis of these new International Units.

BROADENING U. S. P. ACTIVITY.

This brief review will provide an insight into the rapidly expanding service of the Pharmacopœia and its capacity for meeting new and changing conditions. The Board of Trustees and Committee of Revision have met every situation as it has arisen with energy and efficiency.

The report of the Committee on the N. F. was called for. It was presented by E. N. Gathercoal. He stated that he had prepared a mimeographed copy of the report which was presented. Chairman Cook referred to the relationship which existed between these standards.

THE DEVELOPMENT OF N. F. VI.

BY E. N. GATHERCOAL, CHAIRMAN OF THE NATIONAL FORMULARY COMMITTEE.

In this short address there are four ideas culminating in a conclusion that will be presented for your attention, *i. e.:*

First. As you all know, the U. S. Pharmacopœia was originally prepared exclusively by physicians and for physicians and it is still maintained that the physician should be the most interested of any group in the U. S. P. The National Formulary originally was intended to be exclusively a pharmacist's handbook, but the pharmacists who have it in charge have been gradually recognizing that the National Formulary must enlist the interest of the physician if it is to prosper and to grow in influence. This means that the National Formulary has, in part at least, changed its *objective* and approaches, in this respect, the U. S. Pharmacopœia. In the progress of the present revision steps have been taken by the N. F. Committee with the thought definitely in mind of making N. F. VI of more interest to the physician.

Second. An extensive effort has been made to determine which items of medicine are really being used in prescriptions and are being sold in drug stores, with the thought in mind of omitting from N. F. VI those items which are not much used and of including those items (non-U. S. P.) which are being used as medicines. Furthermore, the National Formulary Committee took a definite step, at the suggestion of E. Fullerton Cook, to admit into N. F. VI those simple drugs and chemicals that are not U. S. P. and that are not used in any preparation in N. F. VI, but that do have a wide use in medicine.

We all know that the U. S. Pharmacopœia has always stood on a firm therapeutic foundation. As the scientific knowledge, regarding the usefulness of drugs has increased, it has been combined with clinical knowledge and every item proposed for admission to the U. S. Pharmacopœia has been critically examined in the light of this combined knowledge. The National Formulary hitherto has consistently denied any therapeutic examination to the items given admission to it. However, in this revision, such examination, indirectly at least, is being applied in the fact that we are requiring these items to show prescription usage. Certainly there is no better criterion as to the therapeutic value of a medicine than the extent to which the physicians of our land prescribe it. Here again in the *scope* of the National Formulary we are definitely approaching the same scope as that of the U. S. Pharmacopœia.

Third. Since the passage of the National Pure Food and Drugs Act in 1906, the U. S. Pharmacopœia has taken on in each revision more and more the character of a legal standard. Every word is critically examined to see that it properly meets the legal conditions. Consultation with the national enforcement officials has been frequent and these officials have watched the course of the revision and have pointed out improvements from their point of view. The present National Formulary Committee has been giving very careful consideration to the legal character of the book and is in close touch with the authorities in Washington who have in charge the enforcement of the pure food and drugs law. In this revision, these officials now receive copies of the complete N. F. Bulletin and Sub-Committee Letters. Apparently these are read as carefully and critically as the *U. S. P. Circulars* and *Sub-Committee Bulletins*. Certainly we are receiving splendid suggestions from these officials in connection with the N. F. Revision and particularly from the enforcement point of view. In its *legal* character, therefore, N. F. VI will closely approach U. S. P. XI.

Fourth. It is well known to you that in the construction of the monograph and in the general makeup of the book, N. F. V followed very closely U. S. P. X. This is being continued with N. F. VI. It is seriously proposed that in N. F. VI we do away with "Parts I, II and III" and follow the U. S. P. in a strictly alphabetical arrangement of all monographs. If this be done, N. F. VI will even more closely resemble U. S. P. XI in *style* of *monograph* and *book*.

CONCLUSION.

What then are we doing? Why is the National Formulary becoming more and more like the U. S. Pharmacopœia? What is the object in making the two books so much alike in objective, in scope, in legal character, in the type of monograph and in general makeup? There has been no predetermined effort to do this. We find that every time a question bearing on this point is decided by the Committee, the decision brings the two books closer together. However, all of

these movements seem to be for the best interests of the N. F. The aim constantly in view is to make the book more useful and more popular to both physician and pharmacist. The interests of pharmacists are being maintained and improved rather than being depreciated or lost and the interests of physicians are being increased. The new book will be of great practical value to the pharmacist, and certainly physicians should be interested in standards for all of the items they prescribe.

There remains one final thought. Shall we quietly and simply place the National Formulary in the position of a secondary pharmacopœia and be content therewith? Shall we endeavor to establish a definite and self-evident distinction between the two books and maintain the impression that they are very distinct entities not related to each other? Such a distinction has been suggested of late, in that the U. S. Pharmacopœia should become a book standardizing only chemicals and vegetables or animal drugs, while the National Formulary should have no simples, but should standardize only preparations of these simples. Prof. E. Fullerton Cook has very ably answered these questions in a communication addressed to the National Formulary Committee and printed in the N. F. Bulletin. He says in part: "When Dr. Charles Rice actively promoted the National Formulary he was Chairman of the 1880 Committee of Revision of the United States Pharmacopoeia and it was definitely planned and established as a supplementary book to the Pharmacopœia. In fact, this was the only excuse for its existence. . . . The National Formulary has always frankly taken the place of a secondary book and it has not been particularly discredited because of this, as it occupies a very important position and has legal authority equal to the Pharmacopœia. . . . The definite policy at the present time for including in the Pharmacopœia only those items which are therapeutically acceptable to the physicians elected by the United States Pharmacopœial Convention, and to include in the National Formulary other items extensively used by physicians but not found in the U. S. P., is sound and generally acceptable."

The two books should continue along the same lines that they are now following, for there are splendid fields for each of them. The U. S. Pharmacopœia should be the highest therapeutic authority in the land. It should not only present the best remedy out of a group of remedies, but it should present a suitable remedy, where possible, for every pathogenic condition where a medicine is needed. So far as possible, the National Formulary should provide standards for all non-U. S. P. remedies used by physicians.

There is a great difference in medical practice between a list of remedies of highest therapeutic standing and a list of remedies widely used by physicians. This statement casts no reflection upon the ability of the medical profession. It is characteristic of the human race that some lead and others follow. Certainly this is true in the medical profession where also differences of opinion constantly exist regarding the therapeutic value of medicines. Neither is there any unfavorable reflection cast upon the National Formulary by this statement. The U. S. Pharmacopœia is much the older book and throughout its existence has been without a rival as the leader of therapeutic thought in this country. All of the violins in an orchestra cannot be *first* violins. It is certainly very much more honorable and may indicate a very much higher standing in musical ability to be second violin in a high-class orchestra than a *first* violin in a third- or fourth-rate orchestra.

PHARMACEUTICAL RECIPE BOOK.

The report on the Recipe Book was presented by Chairman J. Leon Lascoff as part of the "Symposium on Practicing Professional Pharmacy." (See page 1196.)

The report of the Committee on Non-Official Standards was presented by Chairman John C. Krantz, Jr.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS.

BY JOHN C. KRANTZ, JR., CHAIRMAN.

ORGANIZATION.

Since the presentation of the 1932 report, the personnel of the Committee on Unofficial Standards of this ASSOCIATION has remained practically unchanged. The Committee is divided into two sections, a chemical section under the chairmanship of Dr. Hugo H. Schaefer, and a

botanical section under the chairmanship of Professor E. B. Fischer. In addition to the regular members of the Committee there are serving in the capacity of consultants several associate members.

PROGRESS OF WORK.

Last year Doctor Rose submitted a tentative monograph for a preparation containing the glucosides of digitalis suitable for injection. During this year the committee has extensively studied this preparation in collaboration with Dr. James C. Munch, and we feel that a more or less stable and dependable digitalis preparation has been devised. At the Pocono meeting of the Revision Committee of the United States Pharmacopœia, Doctor Scoville spoke of the desirability of including a preparation of this type in the forthcoming revision of the Pharmacopœia. The Committee on Unofficial Standards submitted its work to Doctor Scoville to be studied further for the purpose of including the monograph in the Pharmacopœia.

PLANS FOR FUTURE WORK.

The Committee in planning its future work invites the suggestions from ASSOCIATION members interested in the establishment of standards. It is their purpose during the coming year to project our preparation of monographs and standards to some of the new and more generally used unofficial drugs.

E. N. Gathercoal referred to the importance of the work of this Committee. He thought that he had an opportunity to question standards for items no longer official or that never have been official. He thought Dr. Krantz had a wonderful future in the work of his Committee to prepare a number of monographs.

Chairman Marvin J. Andrews took the chair.

He called on Dr. H. V. Arny to give a report as chairman of the Committee on Glass Standardization.

GLASS STANDARDIZATION.

Chairman Arny asked permission to use his allotted time for (*a*) the report of the Committee on Glass Standardization, (*b*) the report of the Committee on Research.

As to *Glass Standardization*, in 1932 the committee reported that it had secured $2000 for another two-year research on the study of the deterioration of chemicals exposed to light in suitable glass containers. This work is being successfully carried on by R. H. Blythe, B.S., under the personal supervision of Professors Arny and A. Taub at the College of Pharmacy of Columbia University. The 1932–1934 research is being carried on; some 30 chemicals being studied along the same lines followed in the Arny-Taub-Steinberg research of 1929–1931. The present work is incomplete but the findings to date were published in the July number of the *Glass Container*. Any person interested may obtain a reprint of this paper by applying to Dr. Arny.

As to the *Committee on Research*, attention must be paid to the important experiment begun in 1932. Upon the recommendation of the Committee, with the approval of the Council and with final confirmation by the ASSOCIATION, we established a specific research upon the problem of extraction. We formed a sub-committee of five to supervise the research and we then selected Dr. W. J. Husa of the University of Florida to conduct the work; a grant of $1000 from the A. PH. A. Research Fund being voted for the financing of the proposition. Dr. Husa and his associates have performed unusually fine work during the past scholastic year. The work is as yet incomplete, but the results so far obtained are so important, that the Research Committee feels that the work should be continued during the coming year and upon unanimous vote of the Committee and by a mail vote of the Council last July, a second grant of $1000 was awarded to Dr. Husa and his associates for a continuance of the extraction work during the scholastic year, 1933–1934.

Dr. Arny then asked permission to accord the rest of his time to Dr. Husa, who then outlined his work of 1932–1933.

W. J. Husa made the report on the A. PH. A. Drug Extraction Fellowship. It follows:

REPORT ON A. PH. A. DRUG EXTRACTION FELLOWSHIP.

BY WM. J. HUSA.

A year ago, on recommendation of the A. PH. A. Committee on Research, a $1000 research grant was awarded by the A. PH. A. for research on drug extraction to be carried out under the direction of Dr. W. J. Husa, at the University of Florida. Mr. Louis Magid, B.S. in Pharmacy, M.S. in Pharmacy, a former winner of the Fairchild Scholarship, was appointed A. PH. A. Fellow on Drug Extraction. Mr. Paul Fehder and Mr. C. L. Huyek, both graduate students at the University of Florida, have also conducted research on certain phases of the general problem. The work of these three men has been under the direct supervision of Dr. W. J. Husa, who has been assisted by a special supervisory committee of ten of which he is chairman, representing the fields of pharmacy, pharmacognosy, pharmacology, chemistry, physics, plant physiology, plant chemistry and biochemistry, made up of faculty members of the University of Florida and research workers of the Florida Agricultural Experiment Station. The entire project has been under the general supervision of a sub-committee of five members of the A. PH. A. Committee on Research, consisting of Dr. H. V. Arny, *Chairman*, Dr. W. L. Scoville, Dr. George D. Beal, Dr. E. N. Gathercoal and Dr. E. Fullerton Cook.

The main purpose of the first year's work was to investigate the fundamental principles involved in drug extraction, it being recognized that much of our knowledge in this field is purely empirical. Studies have thus been made of the swelling of woody tissues in alcohol, water, glycerin and their binary and ternary mixtures in some of the newer organic solvents. For this study methods were devised for the convenient determination of the swelling of thin strips and blocks of woody tissue, as well as for powdered drugs. Studies were made of the rate of penetration of various solvent mixtures into woody tissue. The theoretical aspects of the effect of solvents on drugs were considered from several points of view, such as solvation, evolution of heat during maceration, effect of the structure of the drug, effect of solubility of the constituents, etc. The methods evolved were applied in studies of swelling and penetration using belladonna root and jalap. Studies are in progress on the rate of penetration by solvents and rate of extraction of constituents in a maceration process.

The grant having been renewed for the coming year, work has been planned involving a comprehensive study of the extraction of two drugs of different types, *i. e.*, belladonna root and jalap. The methods and principles developed in the past year's work will be applied as far as possible in the intensive study of extraction with the purpose of developing general principles and techniques which will be helpful in studying the extraction of other drugs. While it may be true that each drug presents an individual problem, it is believed that a study of fundamental principles and the development of new techniques for drug extraction research will lead to a better understanding of drug extraction and stimulate further scientific studies in other laboratories on the extraction of other drugs as well as on the scientific principles involved.

Detailed monthly reports have been submitted to the sub-committee of five, including extensive tables of data, graphs, photomicrographs, etc. Plans are under consideration looking toward a start on publication of the results within a few months in a series of papers in the JOURNAL OF THE A. PH. A.

The report of the Committee on the Ebert Prize was presented by Chairman Heber W. Youngken.

REPORT OF THE COMMITTEE ON EBERT PRIZE.

Your committee has examined all of the published and unpublished papers presented to the AMERICAN PHARMACEUTICAL ASSOCIATION at the Toronto meeting in 1932. After careful consideration of the merits of each, it has decided to recommend that the Ebert Prize be awarded to Ewin Gillis and H. A. Langenhan for their splendid treatise entitled "A Phytochemical Study of Hydrastis Canadensis."

Aug. 31, 1933.

(Signed) E. E. SWANSON,
L. E. WARREN,
HEBER W. YOUNGKEN, *Chairman*.

The report was accepted.

This completed the order of business for this Section.

The following paper, "Some Facts Concerning the Pharmacological and Physiological Action of Acetanilid," by S. T. Helms, was presented. (No discussion.)

The following papers were presented by James C. Munch:

"The Effects of Thallium on Vegetative Growth," by James C. Munch, F. R. Garlough, J. C. Ward and E. E. Horn. "The Nephrotoxic Action of Thallium Compounds," by H. J. Spencer, James C. Munch, J. C. Ward and F. E. Garlough. "The Effect of Altitude on the Action of Drugs, I. Strychnine," by J. C. Ward and A. W. Moore.

The Joint Session was then adjourned.

THIRD SESSION.

The Third Session of the Scientific Section convened at 2:00 P.M. on Friday, September 1st, Chairman Husa presiding.

The first paper, "The Toxicology of Barbituric Acid Compounds," by Amelia M. de Ponce and James C. Munch, was presented. The paper on "Picrotoxin-Barbituric Acid Antagonism," by Amelia M. de Ponce and James C. Munch was presented at the same time by James C. Munch. (No discussion.)

President Philip congratulated the Scientific Section for its work during the year.

The following papers were presented: "Common Seeds and Their Dispersal," by L. K. Darbaker. (No discussion.) "The Fate of Mannitol in the Animal Body," by C. Jelleff Carr, Jacob E. Schmidt, Ruth Musser and John C. Krantz, Jr. It was read by Mr. Carr. (No discussion.)

The following papers were presented by James C. Munch: "The Bioassay of Picrotoxin and Cocculus Indicus Preparations," by James C. Munch. "A New Factor in Pituitary Assays," by Amelia M. de Ponce and James C. Munch. (Discussion will be submitted when papers are printed.)

A paper on "Synthetic Phytosterolins," by Ole Gisvold and Edward Kremers, was presented by Mr. Gisvold. (No discussion.)

The next paper on "The Action of Ergot and Its Alkaloids on the Puerperal Uterus," by E. H. Stuart and E. E. Swanson, was presented by E. E. Swanson. (Discussion will be submitted when paper is published.)

"An Unusual Peppermint Oil," by Sister M. Francis Xavier and Edward Kremers, was not read because of the absence of the authors.

The succeeding papers were, "Several Organic Arsenicals," by George Doak and Edward Kremers. (No discussion.) "Oxidation and Antioxidants," by A. Lee Caldwell and Francis E. Bibbins. (No discussion.)

On account of the absence of the authors the following papers were not read: "The Preparation and Bacteriological Study of Certain Thioazole Azo Dyes," by W. A. Lott and W. G. Christiansen. "Di-beta-Bromallyl Amino Ethyl para Amino Benzoate," by W. Brake and W. G. Christiansen. "A Convenient Laboratory Method for the Preparation of Unsymmetrical Diethyl Ethylene Diamine," by W. A. Lott and W. G. Christiansen. "A Study of a New Series of Urethanes," by W. A. Lott and W. G. Christiansen. "The Preparation and Properties of 3,3'Bis (Azometa-Phenylene-diamine) 4,4'Dihydroxyarsenobenzene and 3,3'Bis (Azo-2,6-Diaminopyridine) 4,4'Dihydroxyarsenobenzene," by A. E. Jurist and W. G. Christiansen.

C. Jelleff Carr read the paper on "The Influence of an Insulin-Free Pancreatic Extract on the Metabolism of the White Rat," by C. Jelleff Carr, James C. Munch, Jacob E. Schmidt and John C. Krantz, Jr. (No discussion.)

There was no discu ssion on the following paper: "Further Studies in Strychnine-Quinine Alkaloids, Antagonisms and Potentiations," by James C. Munch and Harry J. Pratt.

"Absorption of Vitamin D from the Skin," by Florin J. Amrhein, was read by the author.

Owing to the absence of the authors the following papers were not read: "The Germicidal Action of 2-Chloro-4-*n*-Alkylphenols," by F. F. Blicke and R. P. G. Stockhaus. "The Pharmacological Action of Ten Amines Related to Ephedrine and Tryptamine," K. K. Chen and A. Ling Chen.

The following papers were read by James C. Munch: "Quantitative Applications of the Modified Türck Test," by James C. Munch, Harry J. Pratt and Amelia M. de Ponce. (No discussion.) "Organoleptic Bioassays," James C. Munch, George E. Byers and Harry J. Pratt. (No discussion.) "The Mydriatic Activity of Lactucaria by the Munch Method," by James C.

Munch, Harry J. Pratt and George E. Byers. (No discussion.) It is printed in the October JOURNAL, pages 943–947.

The two following papers were read by title: "The Volatile Oil of Hyptis Mutabilis," by Harold W. Werner; and "The Potency of Native Digitalis of Oregon," by Ernst T. Stuhr and Donald Kuo-Chih Lee.

James C. Munch presented a paper on "A Critical Study of the Broom-Clark Method for the Bioassay of Ergot Preparations," by Amelia M. de Ponce and James C. Munch. (No discussion.)

The report of the Committee on the Chairman's Address was then taken up. Chairman John C. Krantz, Jr., read the report:

REPORT OF THE COMMITTEE ON THE CHAIRMAN'S ADDRESS.

1. The Committee wishes to commend the Chairman on his critical study of the activities of the Section so well set forth in his address.

2. The Committee approves the Chairman's recommendation to limit the reports before the Joint Session of the sections on Practical Pharmacy and Dispensing and the Scientific Section to: UNITED STATES PHARMACOPOEIA report, 20 minutes; National Formulary report, 20 minutes; other reports are limited to 10 minutes, with a maximum period of 5 minutes' discussion for each.

3. The Committee approves recommendation No. 2, empowering the officers of the Section to organize two or more divisions of the Section to hold simultaneous meetings for the presentation and adequate discussion of papers.

4. Approves Recommendation No. 3, namely, that the Council of the ASSOCIATION consider the advisability of securing funds for the purpose of supporting an adequate publication program.

5. Approves Recommendation No .4, in part, namely, that space now devoted to the monthly printing of the roster of various organizations be made available for the publication of scientific papers.

6. Approves that the number of papers offered by any laboratory be not curtailed—the Committee on the other hand regrets that other laboratories do not publish more of their work through this medium.

(Signed) GEORGE D. BEAL,
G. L. WEBSTER,
JOHN C. KRANTZ, JR.

Chairman Krantz moved the adoption of the report. F. E. Bibbins inquired whether the division of the Section into sections for simultaneous meeting is a positive order or a suggestion.

The Chairman stated the officers were empowered with a prerogative.

George L. Webster believed the recommendation (not quoted), that the officers be empowered to ask the Council of the ASSOCIATION for the privilege of doing so, if the emergency warranted.

Mr. Bibbins said that was the point he desired to bring out.

E. V. Lynn inquired whether there was a place for discussing the number of papers that are presented. Chairman Husa said this could be brought up under New Business.

Chairman Krantz asked consideration of the part of the report relating to reports of the Joint Session of the Scientific Section and Section on Practical Pharmacy and Dispensing. On motion of F. E. Bibbins, seconded by James Munch, vote was called for and carried.

Chairman Krantz asked for consideration of Recommendation No. 2.

Mr. Webster stated that the vote should be to empower the officers to ask the Council for consent to hold simultaneous meetings. Move to adopt was made by James C. Munch and E. V. Lynn—carried.

Chairman Krantz asked for consideration of Recommendation No. 3, that the Council of the ASSOCIATION consider the advisability of securing funds for the purpose of supporting an adequate publication program. In due order this was adopted.

Chairman Krantz brought up Recommendation No. 4, re the roster pages to be made available for papers of the Scientific Section.

F. E. Bibbins referred to a session of Council when the value of the roster was discussed, that to reduce the publication of it would detract from its value.

E. V. Lynn inquired whether there was any objection to recommending the Recommendation.

James C. Munch stated he had discussed the subject with Editor Eberle, who said that the roster was referred to frequently by members and in correspondence.

Chairman Husa referred to the number of pages in the roster during the year. He was of the opinion that parts of the roster might be alternated. He had relinquished the chair to the Vice-President so as to discuss the proposal. After some further discussion the acceptance was put to a vote and carried.

Chairman Krantz asked for consideration of Recommendation No. 5—that the number of papers offered by any laboratory be not curtailed; the Committee regrets that other laboratories do not publish their work through the JOURNAL.

E. V. Lynn thought the papers should be curtailed. He was advised that about 25 papers were left over from last year and at this session there were many papers presented. He was of the opinion that a somewhat similar method was adopted by the American Chemical Society. Papers presented here should be referred to a Committee for study and censoring them. In many cases papers can be cut down materially and perhaps some papers should not be published.

James C. Munch said he had about twenty-one papers and that he had completed six other pieces of investigation, which are partly written up for presentation. He said, a few years ago the Scientific Section had to beg for papers for the program. The opinion of some members has been that one year there is a very large number of papers and in another year the reverse is the case.

He thought that it could be arranged by asking a contributor of a number of papers to designate the more important and this would give him longer time on the other papers.

He had six investigators with Sharp & Dohme, twenty with the Federal Government and about fifteen at Temple University. This material should be published in the JOURNAL A. PH. A. The fact that a paper is not published in this publication does not mean it will not be published elsewhere. His experience with Editor Eberle has been that he unhesitatingly tells him when a paper might better be published in another journal. In other words, the ASSOCIATION owns the papers presented here but is perfectly willing to waive publication of them if the authors or the editor feels that they should be published in some other journal. He was convinced that most of the papers presented in this Section have a direct relation to pharmacy. He did not believe that the time is ripe for deliberately curtailing the number of papers.

F. E. Bibbins inquired whether this was not the work of the Committee on Review of Papers—they are supposed to work with the Editor and review all the papers of the Section before publication.

Chairman Husa thought the discussion was bearing a little away from the motion, which is, that the number of papers from one laboratory should not be curtailed.

Dean Rivard thought that some of the papers could be printed in abstract or complete as a monograph.

After some further discussion Recommendation 6 was adopted by vote.

Chairman Krantz stated that this completed the business of the Committee on the Chairman's address. He moved the following resolution:

"That all papers presented before the Scientific Section be presented to the Committee on Review of Papers for approval before being accepted for publication in the JOURNAL. The decision of the Committee on Review of Papers shall be final, and it shall be forwarded to the Editor for communication to the author."

F. E. Bibbins moved adoption of the resolution.

E. V. Lynn asked for the meaning of the resolution.

John C. Krantz, Jr., explained that papers presented here, before being accepted for publication, shall be given to the Committee on Review of Papers who will pass on the advisability of publishing them. He thought that in some instances it would have to call on expert advice in various fields before reaching a final decision. It might be advised that papers be materially condensed, sometimes tabular matter could be omitted from the paper; it might be advisable not publishing at all. The report will be forwarded to the Editor and, in turn, he shall report to the author.

After some further discussion by Messrs. Krantz, Bibbins and Lynn, the latter moved the

insertion of the word, "must," *i. e.*, that "the papers must be referred to the Committee on Review of Papers before publication in the JOURNAL."

F. O. Taylor inquired whether the Editorial Board mentioned in the discussion is the same as the Committee on Review of Papers. He was advised that it is the same Board, not a new Board.

Heber W. Youngken asked relative to the function of the Committee on Review of Papers, whether it could indicate the title for a paper and have the right to delete certain portions of a paper.

Chairman Husa said the name should be Committee on Review of Papers. It is required that all papers of the Scientific Section be presented to the Committee for review, before publication in the JOURNAL.

John C. Krantz said the Committee would have the right to recommend changes to the Editor. Heber W. Youngken did not approve of such changes as he had inquired about; he saw great danger ahead. Dr. Krantz explained that the paper would under such circumstances be returned to the author for revision.

F. O. Taylor thought the point taken by the latter had worked very well in the American Chemical Society. In his opinion more work will be added to that of the Committee. The principle of the thing he believed to be good. Exactly how those details should be worked out would have to be left to the good judgment of the Board.

Secretary Rowe explained that heretofore there had been no condensation of papers (except as brought about by the Editor).

Mrs. W. Bruce Philip referred to a paper which she had presented to the Editor, but he replied that he could not pass on it—he would refer it to the Committee on Review of Papers. There was some discussion as to whether the Committee should be elected or appointed by the Chairman of the Section.

James C. Munch thought the appointment should be made by the Chairman. He also referred to several very long papers which had been submitted to the Section in the past.

F. O. Taylor agreed with the former as to appointment.

The resolution was again read by Chairman Husa; he asked Dr. Krantz relative to the name of the body; he replied that it is "The Committee on Review of Papers." The resolutions read as follows:

"*Resolved*, That all papers presented to the Scientific Section must be referred to the Board of Review of Papers of the Scientific Section for approval before being accepted for publication in the JOURNAL."

The decision of the Board of Review of Papers shall be final. It shall be forwarded to the Editor for communication to the Author.

A motion to adopt was seconded and carried by vote.

John C. Krantz moved that all papers to be published under the Scientific Section in the JOURNAL must be referred to the Board of Review of Papers of the Section. Seconded by James C. Munch, and carried by vote.

C. Jelleff Carr referred to the *Journal of Biological Chemistry*, in which the inside of the cover page is devoted to the type of Journal reference and various information of the authors. He suggested a small committee to study possibilities along this line. James C. Munch made a motion that these suggestions be referred to the Committee on Review of Papers for rejection or approval at the next meeting. It was carried by vote.

He moved that the reports of the members of the Committee on Monographs be presented as part of the minutes of the Joint Session of the Scientific Section and the Section on Practical Pharmacy and Dispensing, when these monographs are completed. The motion was seconded by John C. Krantz, Jr., and after some discussion was carried by vote.

The two following papers were read by James C. Munch, "A Critical Study of the Broom-Clark Method for the Bioassay of Ergot Preparations," by Amelia M. Ponce and James C. Munch. "Antidotes. I. General Plan," by F. E. Garlough and James C. Munch.

"The Application of Statistical Methods to Pharmaceutical Research. IV. Methods of Recording Drug Action," by James C. Munch and F. E. Garlough.

George O. Doak inquired relative to the chemical poison in Red Squill. The author replied that it was not an alkaloid and he was not certain whether it was a glucoside. Little is known

about the solubility of the active constituent, and considerable relative to the pharmacological action. The workers had been able to obtain a product that resembles a glucoside more closely than any other group.

F. F. Berg presented the report of the Committee on Nominations.

On motion of James C. Munch and seconded by G. L. Webster the Secretary was instructed to cast a unanimous ballot of the Section for the officers named in the report. The Secretary was so instructed and the following were declared elected officers of the Section:

Chairman, F. E. Bibbins; *First Vice-Chairman*, E. V. Lynn; *Second Vice-Chairman*, H. M. Burlage; *Delegate to the House of Delegates*, Wm. J. Husa. The officers were presented and duly installed.

Chairman Bibbins thanked the members of the Section for the honor conferred and he asked for coöperation of the members. The other officers of the Section briefly expressed their appreciation for the honor conferred.

Chairman Husa asked whether there was any new business.

James C. Munch stated that at the time the Committee on Monographs was appointed the thought was that the reports could be presented by the respective authors, before the Joint Session of the Scientific Section and the Section on Practical Pharmacy and Dispensing. He thought it was probable that the first monograph on Aconite will be completed before the next annual meeting. In his opinion, provision should be made on the program and each of the authors of each monograph should be given five or ten minutes to state what had been done, so that the Association might have an idea of the work accomplished. These monographs will have to be published and sold at a price to defray the expenses.

Chairman Husa relinquished the chair. He wondered whether the action would be premature.

Dr. Munch stated that if arrangements were made to provide place on the program it would arouse interest. It was not expected that the A. Ph. A. would finance the cost of the publication. Such arrangements will probably be made outside of the Association and orders solicited for copies of the monographs and this discussion will enable the Publication Committee to form an idea as to the approximate demand for copies of the monographs.

The Final Session of the Scientific Section was then adjourned.

SECTION ON PRACTICAL PHARMACY AND DISPENSING.

The First Session of the Section on Practical Pharmacy and Dispensing was called to order by Vice-Chairman, Marvin J. Andrews, because of the absence of Chairman W. Paul Briggs, Thursday, August 31st, at 9:00 A.M. (Chairman Briggs could not attend because of the serious illness of his mother.)

The Secretary's report follows:

REPORT OF THE SECRETARY.

The Secretary's report writes itself rather well in the program of the Section; therefore, an extended résumé is not needed at this time. The work has been interesting and while at times it may have seemed somewhat discouraging, yet slowly but surely it was accomplished and the program completed.

Two items which the Secretary hopes will become a part of future procedure: *First*, that all members contributing papers will forward to the Secretary by July 1st, the title and a short abstract. If this is done the preparation of the official program is greatly facilitated. *Secondly*, the establishment of a Registry Book to be signed by all persons interested in the work of the Section, with their addresses. This offers a means of building up a membership in the Section and developing an interest in the advancement of our part in pharmacy.

Thanking the members for their help in building the program for these sessions the Secretary voices the views of the officers in saying that they have been very happy to serve.

R. E. Terry, *Secretary*.

On motion duly seconded report was received and accepted as read.

The Chairman appointed as members of the Committee on Nominations: L. W. Rising, C. V. Netz and H. M. Burlage.

The reading of the papers was proceeded with as follows:

"Variations in Hand Moulded Hypodermic Tablets," S. W. Bower. (No discussion.)

"Amaranth as a Substitute for Cudbear," by Sherman W. Morrison.

Dr. Bernard Fantus expressed his appreciation of the work. He stated that the colors of medicine had a psychological effect on the patient and it should be possible to provide standards for colors; that crude drugs should be abandoned in favor of more definite compounds.

Wm. Gray suggested that the selection of the coloring be considered in providing a standard. The author showed samples of the alkaline and acid solutions of amaranth and cudbear and noted the differences in the colorings.

"The Preservation of Halibut Liver Oil with Hydroquinone," by W. S. Jones and W. G. Christiansen was read by F. W. Nitardy. H. M. Burlage inquired whether two different portions of halibut oil might not react differently. Mr. Nitardy stated that the un-refined oil is more stable; that some of the natural protective properties are removed in refinement, and it was important to have a method of protecting the refined oil.

F. W. Nitardy summarized the following papers: "A Phenyl Derivative of Dulcin as a Saccharin Substitute," by T. B. Grave, J. Lee and W. G. Christiansen. "A Comparison of the Effect of Phenyl Ethanolamine and Ephedrine on Nasal Membranes," T. B. Grave and W. G. Christiansen. "The Germicidal Value of Some Unsymmetrical Dialkyl Resorcinols," by S. E. Harris and W. G. Christiansen. "Local Anesthetics—Phenyl Procaine," by W. Braker and W. G. Christiansen.

Wm. J. Husa presented the paper, "The Accuracy of Medicine Droppers with Flared Tips," by Wm. J. Husa and Lydia M. Husa. (The paper is printed in the October issue, page 975.) In commenting, F. W. Nitardy said that tincture of digitalis is commonly prescribed in drops. Such dosage should be designated in minims. Wm. Gray stated that some doctors recognize these differences and prescribe a pipette, accordingly.

Irwin A. Becker inquired if the angle of the dropper had been taken into consideration. Dr. Husa replied that the experiment only considered drops from the straight position and that the angle might influence the results. It is necessary to understand the doctor's intention in such prescriptions. The hope was expressed that the authors would continue the studies.

The following paper was presented.

"The Protection of Prescription Labels with Lacquer," by Wm. J. Husa and Lydia M. Husa.

William H. Glover inquired relative to the author's experience with preparations containing camphor and oil. William Gray recommended the use of flexible collodion as well as lacquer. I. A. Becker thought that two coats of collodion and two coats of lacquer would prove of value. F. W. Nitardy suggested a solution of acacia. He preferred a bottle with a lip that would prevent dropping on the side of the label. W. J. Husa stated that U. S. P. collodion had been used for coating labels. He referred to a variety of lacquers. He also spoke of a case of poisoning because of unreadable labels. Charles H. Gauger said that when a bottle is returned for refilling the label coating should be removed so as to make certain of the correctness of the number. Dr. Husa stated that his experience was that different firms handle prescriptions differently. Some are very careful and others are not.

I. A. Becker spoke further on the application of the coating.

The paper on "Sulphurated Lime Solution," by R. A. Cain and H. A. Langenhan was presented. (Further work on this solution is being carried on.)

H. C. Newton inquired whether the process produced a more stable product.

Mr. Cain stated that the method results in some crystallization. Wm. Gray commented, that the solution can be kept almost indefinitely in well-stoppered bottles.

Charles H. Gauger referred to a prescription of a dermatologist requesting that 10 drachms of the solution be evaporated to 6.

S. W. Morrison said that making the solution accord with the National Formulary and then washing the crystals with hot water resulted in their solution.

The following three papers were presented by title:

"Dental Drugs Accepted and Rejected," by George C. Schicks.

"Useful Dental Prescriptions," by A. O. Michelsen.

"It Can Be Done," by J. Leon Lascoff. (Printed in the October number of the JOURNAL, page 970.)

"Miscible Fluidextract of Ipecac," by W. G. Crockett and J. A. Reese. (It is printed in the October JOURNAL, page 968.)

"Determination of the Reasonable or Permissible Margin of Error in Dispensing. II. Ointments," by Marvin J. Andrews. Discussions will be included with the printed paper.

The First Session of the Section on Practical Pharmacy and Dispensing was then adjourned.

SECOND SESSION.

The Second Session of the Section on Practical Pharmacy and Dispensing was convened by Vice-Chairman Marvin J. Andrews, Friday, September 1, at 2:00 P.M.

The first paper was "Prescription Accuracy as Shown by State Board of Pharmacy Examinations," by R. L. Swain. The author stated that he had worked with Mr. Andrews and some of the findings were included in the latter's paper on "Determination of the Reasonable or Permissible Margin of Error in Dispensing," published in the JOURNAL for August and September 1933.

Emerson D. Stanley inquired whether there might not have been greater accuracy for the prescription if it had contained more potent ingredients. The author stated there are unlimited and infinite possibilities for deviations. He hoped that greater accuracy obtained in prescriptions containing more potent drugs. The author stated that extensive study was being made, and referred to a Maine case where the compounding had been carelessly done. In this case the court reviewed various methods of weighing and dividing powders. Charles H. Gauger stated that in their laboratories at the school they found an average error of about 10 per cent.

D. F. Jones inquired whether the error in many cases might not have been attributable to trituration.

The author expressed great interest in the work of Mr. Andrews whereby it was hoped to establish a tolerance limit.

L. W. Rising inquired whether any check had been made on therapeutical differences arising out of deviations. Mr. Andrews thought that the deviations in that respect were not large.

The following papers were presented by title:

"Comparison of Karaya Gum and Tragacanth," by L. F. Gabel.

"Aromatic Elixir," by L. D. Havenhill and M. G. Smolt.

"Magnesium Salt of Tribrom Ethyl Sulphuric Acid," by E. Moness and W. G. Christiansen.

"A Comparison of Neoarsphenamine and Sulfarsphenamine When They Are Dialyzed," by A. E. Jurist and W. G. Christiansen.

"The Solubility of Potassium Chloride in Aqueous Potassium Iodide Solutions," by S. E. Harris and W. G. Christiansen.

"Study of Germicidal and Antiseptic Activities of Some Derivatives of 8-Hydroxy-Quinoline," by E. Moness and W. G. Christiansen.

"Study of Germicidal and Antiseptic Activity of Some Mercury Compound," by E. Moness, S. E. Harris and W. G. Christiansen.

"A Preliminary Study of Capsule Tolerances," by Wm. F. Reindollar.

F. W. Nitardy presented a paper on "Method and Apparatus for Producing Activated Petroleum Products (radolatum)," a petroleum product activated by ultraviolet irradiation.

R. E. Terry inquired relative to the length of time the material retains its activity. The author replied that the material was about a year old and had retained its activity. The limit of time had not been determined. He stated that more hospitals were trying to make this product. Working in coöperation with Dr. Eising he found that the U. S. P. petrolatum cannot be used. He also described the construction of the lamp and other parts of the apparatus.

The author referred to cases in which the preparation had been used for wounds that had resisted healing and responded to application of this preparation.

President Philip entered the room and expressed appreciation of the work of the Section.

Reading of papers was continued: "The Relationships of Prescription Incompatibilities of Pharmacy," by Leon W. Richards.

R. E. Terry commented on the study of incompatibles. Rowland Jones stated that there was little difficulty in interesting the physician in bringing about the correction of an incompatibility.

Dr. Fantus said that the doctor should be approached diplomatically.

"Hydrogen-Ion Concentration of Certain Galenicals," by C. Jelleff Carr and John C. Krantz, Jr., was read and discussed. (Discussion will be printed when paper is published.)

There was no discussion of the following papers:

"A Study of Aromatic Elixir," by C. O. Lee and Marshall Close.

"A Study of the Antiseptic Properties of Phenol Ointments," by R. O. Craw and C. O. Lee.

"A Study of Ointment of Belladonna," by C. O. Lee and H. C. Hoch.

"A Study of the Precipitate of Fluidextract of Uva-Ursi," by C. O. Lee and J. E. Bell.

The following papers were presented by title, "A New Method for Debittering Cascara Sagrada Extracts," by August J. Pacini.

"Absorption of Acids by Charcoal," by Saul Caspe.

"A Practical Enteric Coating for the Retail Pharmacist," by F. S. Bukey and Phyllis Rhodes.

"Aromatic Elixir," by L. D. Havenhill and M. G. Smolt.

R. L. Jones inquired relative to the use of formaldehyde as an enteric coating for capsules.

Marvin J. Andrews referred to a number of papers presented at various sessions of this Section. Wm. Gray stated that the treatment of gelatin capsules with formaldehyde makes them hard. An informal discussion on collapsible capsules followed.

R. E. Terry suggested that the incoming officers study the practicability of forming a committee of the Section on Prescription Tolerances.

The report of the Committee on Nominations was presented, nominating M. J. Andrews, *Chairman;* R. W. Clark, *Vice-Chairman;* R. E. Terry, *Secretary,* and L. W. Rising, *Delegate to the House of Delegates.* There being no other nominations the nominees were duly elected and installed.

The officers expressed their appreciation of the honor conferred. The Section was then adjourned.

For *Joint Meeting of Scientific Section and the Section on Practical Pharmacy see under preceding minutes—that of Scientific Section. For brief report of the Section to the House of Delegates—see page 1056, October Journal.*

SECTION ON COMMERCIAL INTERESTS.

FIRST SESSION.

The First Session of the Section on Commercial Interests was convened on Wednesday, August 30th, at 2:30 P.M. The meeting was called to order by Vice-Chairman John A. J. Funk, in the absence of Chairman Leon Monell. A communication from the Chairman was read by Secretary Henry Brown, explaining that, because Mr. Monell was in attendance at a conference in Washington on the Retail Drug Trade Code, he would be unable to attend the session. His greetings and regrets were extended.

Secretary Henry Brown reported on a meeting of the Section on Commercial Interests, following the close of the sessions in Toronto. A meeting was also held in Boston to talk over the program for 1933. A third meeting was held in Scranton on April 13th; at this meeting it was urged that there be a diversification in the program of papers and the Secretary was instructed to notify contributors of papers to send them in promptly.

On motion of O. E. Russell, seconded by F. W. Meissner, the report of the Secretary was accepted as read.

The Chairman *pro tem* appointed the following Committee on Nominations: C. Leonard O'Connell, Florin J. Amrhein and Rowland Jones.

A paper, "The Prescription Defined," was read by Dr. Anton Hogstad, Jr., defining the prescription as a set of instructions from the physician to the pharmacist, belonging in no way to the patient. As such, the prescription is a confidential document and examination by detail

men or by other physicians should not be permitted. The use of a drawer or secret file should supplant the spindle commonly used. Common carelessness of physicians, due to ignorance of pharmaceutical Latin and inadequate training offered by medical schools, should be tactfully remedied by the suggested use of the telephone where the pharmacist is permitted to ask questions and to double check the physician.

The dispensing of information to physicians on other prescriptions is especially a violation of the confidential relationship defined. Such information is available to the physician either through consultation of the physician writing the prescription or a copy which the patient may obtain.

The use of the prescription blank as an advertising pad which the physician utilizes as a scratch pad is another practice to be discouraged by the incorporation of dignity in this division of the profession.

The assignment of a definite appointed hour to the detail men will also add order and prevent the spending of unnecessary time in the store.

A lengthy discussion followed the presentation of this paper. Rowland Jones supported Mr. Hogstad's suggestion on the use of the prescription blank. He has found that the blank without the pharmacist's name is decidedly successful. He does not carry them to the physician's office, but provides and recommends a prescription blank for each physician with the name in the lower part. The name of the patient in the upper right hand corner may be offset by the name of the druggist inconspicuously placed. Privacy in the use of the blanks was also recommended.

F. W. Meissner commented that the perusal of the prescription file by the physician brings about a lack of confidence in the pharmacist on the part of the physician.

Mr. Hogstad suggested the appointment of a committee to offer a series of educational measures for next year.

The results of the handing out of samples left with the physicians were cited by George Judisch; eight cases of self medication resulted from the passing on of information by a patient who had received such a sample. A telephone conversation heard over a rural line was followed by demands upon the pharmacist for the prescription mentioned.

A symposium on uniformity of procedures was the suggestion of Mr. Hogstad.

Mr. Nelson discussed the open display of the prescription department at the Century of Progress Exposition. The student in charge of the exhibit operates in silence, only occasionally delivering a lecture which prompted many intelligent questions. The exhibit has been a success and suggests that a visible prescription department may be profitable for observation purposes, but should not be used for instruction of the purchaser.

It was moved by Rowland Jones and seconded by many that the paper be accepted and the recommendations considered by the officers of the section.

Dr. Frank A. Delgado, business specialist of the chemical division of the Bureau of Foreign and Domestic Commerce of the United States Department of Commerce, next presented a paper on "Proportion of Drug Store Sales Devoted to Public Health—A Summarization of Retail Drug Distribution Facts Derived from the First Census of Distribution."

According to the data assembled in the first nation-wide Census of distribution taken in 1929 approximately 50 per cent of the sales of the 58,258 drug stores in the United States is devoted to prescriptions, drugs and patent medicines, rubber goods, surgical and hospital supplies and other products associated with the professions of medicine and pharmacy and the preservation of public health. Of the sales of drug stores 23 per cent are made in the Northwest central part of the nation and 22 per cent in the Northeast section. Climate has apparently no effect on total drug store sales, and per capita figures must be treated advisedly. The costs of doing business were taken up in detail.

Mr. Hogstad moved that a vote of appreciation be given Dr. Delgado for his valuable contributions and to Mrs. Delgado for her part in such contributions.

Prof. Paul Olsen, presented a paper on "The American Pharmaceutical Association and the Drug Institute of America, Incorporated." The paper was freely discussed by George Judisch, F. W. Meissner, Henry Hein, Rowland Jones and the author.

The First Session of the Section on Commercial Interests was then adjourned.

SECOND SESSION.

The Second Session of the Section on Commercial Interests was held Thursday, August 31st, at 9:00 A.M. The meeting was called to order by Vice-Chairman Funk. The following papers were presented and discussed: "Publicity and the Pharmacist," by Miss A. E. Garvin; "Profits and Prophet," by C. Leonard O'Connell; "Actual Time and Costs of Some U. S. P. and N. F. Preparations," by Henry Brown; "National Drug Store Survey—Drug Retailing," by Charles F. Beach; "Pharmacy," by William Rodman.

Following the reading of Mr. Rodman's paper a recommendation was made that the Section on Commercial Interests provide for a committee to study the subject of "visible prescription departments."—Carried.

The Committee on Nominations presented the following names for officers of the ensuing year: *Chairman*, John A. J. Funk, Indiana; *Vice-Chairman*, Henry Brown, Pennsylvania; *Secretary*, Wm. Rodman, New Jersey; *Delegate to the House of Delegates*, Russell B. Rothrock, Indiana.

On motion duly seconded, there being no further nominations, the nominees were elected. The officers expressed their appreciation of the honor, following their installation.

The Section recommended that a committee be appointed to study the subject of Prescription Departments, and a motion was made by C. Leonard O'Connell, seconded by Anton Hogstad, Jr., that the Chairman of the Section appoint a Committee on Prescription Department. —Carried.

The Section on Commercial Interests was then adjourned.

SECTION ON HISTORICAL PHARMACY.

FIRST SESSION.

The First Session of the Section on Historical Pharmacy was called to order by Chairman Louis Gershenfeld, at 9:25 A.M., August 31st. The first order of business was the reading of the Chairman's address—"Why the History of Pharmacy?" J. T. Lloyd presided. The address follows:

WHY THE HISTORY OF PHARMACY?

BY LOUIS GERSHENFELD.*

Custom decrees that the chairman of your section shall at the interval of a year following his service deliver before you appropriate remarks. It has occurred to me that I could best command your interest to a brief consideration of data which concern this section and which as a problem must sooner or later concern every scientific worker associated directly or indirectly with pharmacy. No occult reason for the title of these remarks lies behind them. Perhaps the only thought I would like to convey in some slight degree is to again demonstrate that to understand and appreciate pharmacy to its fullest extent you must understand and appreciate its history. History has a real lesson to teach which I think many in pharmacy have learned too late and even more have not learned at all, though greater progress is being made to-day. It was Cervantes who said: "History is the depository of great actions, the witness of what is past, the example and instructor of the present and the monitor of the future." Goethe has expressed himself by stating that "the history of a science is science itself." The great discoverers themselves with few, if any, exceptions do not fail to acknowledge that without the work of their predecessors their achievements would not have been possible.

It is indeed to be regretted that there are some men of science who doubt the value of the history of their respective subjects. They find therein merely a pleasing branch of literature, and accordingly they may even question the wisdom of devoting any time to its study. One may possess the historic spirit but be lacking a knowledge of the facts of history. The errors, the trials and tribulations and the steps of the real progress of any branch of science not only record its evolution but make possible a better understanding and appreciation of its existence and progress. If we have no proper appreciation of the previously existing conditions and upon which new principles are imposed, considerable value may be lost and, in fact, one may never understand what these new principles challenge.

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* Chairman, Section on Historical Pharmacy.

Knowing much of the history of pharmacy we can gain information which would permeate the teaching, practise and research of pharmacy of the future. Here, as well, it is also true that "without a historic setting for his work, a man is almost as helpless as is the man who lacks a sense of humor." It is most unfortunate that in some instances even the history of pharmacy has been "wounded in the house of its friends." There are some who have denied its value in pharmaceutical education and have refused to admit that those who are not familiar with the history of their profession lack a proper vision and perspective of their calling. There are other over-zealous advocates who (perhaps unconsciously) may have wavered somewhat from the true facts when in their attempt to advance the boundaries of pharmaceutical knowledge, they may have made the worse appear as the better, or even in few instances ready-made facts (but somewhat distorted) may have been presented for special interests. The position that pharmacy should take is that not only all in its ranks but all educated in pharmacy should have some knowledge of its history.

It is pleasing to note that "Charters' Basic Material for a Pharmaceutical Curriculum" makes the following potent comments: "The history of pharmacy should be taught as a major means of developing professional morale. It should include (*a*) a description of the origin, evolution and present status of the profession and (*b*) a study of outstanding pharmacists of the past and present in connection with their contribution to the art and science of healing. This material should be as vivid as possible and should reveal the romance of pharmacy. It will fail in its object if it is a mere recital of bald facts. The textbook on history should be a volume of dramatic literature of compelling interest." The Pharmaceutical Syllabus (Fourth Edition, 1932) in the subject matter suggested for a four-year curriculum designates the "History of Pharmacy" as a required subject and allots a minimum of 32 hours for its study, with "the object of the course to stimulate the student to think about the evolution of his calling, rather than to drill him so that he may be able to write a creditable examination paper at the close of the course." In concluding the introductory remarks to the outline of the latter, the Syllabus in referring to what the Student may have gotten out of the course remarks: "He may even have gotten an inkling of how the present has developed out of the past and thus be enabled to plan more intelligently for the future. If he be not particularly proud of the present, he at least need not be ashamed of the past, and the mere glimpses that he has obtained of the past should impart hope for the future."

"I have always thought," wrote Ferdinand Hoefer in the introduction of his "History of Chemistry" (1842), "that the best method of popularizing scientific studies, generally so little attractive, consists in presenting, as in a panorama, the different phases a science has passed through from its origin to its present conditions." Yet let us not forget the words of G. M. Trevelyan, "Every true history must by its human and vital presentation of events force us to remember that the past was once real as the present and uncertain as the future." In presenting pharmaceutical history, shall we not concern ourselves with a close analysis of the materials of which this history is composed rather than with a superficial and slipshod presentation of a picture of such history, which in this manner appears formless and even lifeless? Let us not generalize when only insufficient data is available. With a proper sense of proportion and perspective let all who can help to extend the field of our historical observations and criticisms, but let them be presented not for effect or for specific exploitations but with the compelling force of telling the truth for these true experiences of the past may serve as anchors or guide-posts for the future of pharmacy.

Pharmaceutical workers are to be presented (in biographies) not as lovable curiosities or with the thought of boasting of their achievements, merely because they were associated with pharmacy. True facts concerning their accomplishments, mentioning their worth-while deeds as well as their struggles and failures, should be given so that one may be able to gather the romance, the unselfish activity and frequently the hardship of the life of these workers, for such information may help as useful guides and incentives to others. Young scientists may then be able to gather valuable information from the great traditions of the past, build on this heritage for their own future and thus aspire for higher ideals. Even when presenting occasionally a mere catalog of names as may be found advisable, pointing out briefly the accomplishments of workers in pharmacy necessitates frequently (as is customary in a consideration of historical science) having at least some idea of the conditions which prevailed during the various periods in the development of the branch of science under consideration, if these very names which are to be mentioned are to

convey some meaning, especially when judgment is to be rendered in the light of present knowledge.

The preservation of historical pharmaceutical records is a matter of great importance. It is deplorable, but a fact, that in this country suitable conveniently located housing facilities are not available to any great extent to adequately preserve these records. This lamentable neglect may be remedied soon when the National Pharmacy Headquarters will be established in Washington. It is to be expected that the pharmaceutical archives will be adequately housed here and that a suitable historical museum thus centrally located and under satisfactory supervision will be available. Let us not forget that a properly organized museum can supply a panoramic view of the historical development of pharmacy. The mental impressions thus gained predominantly through the eye, as in models, pictures, specimens, are just as valuable and, perhaps, more so than the printed word. Their perusal can give a good idea of the progress of the knowledge which they embody. They make no demands on one's linguistic powers and they appeal in the same manner and through the same medium through which one may be more frequently accustomed to receive current scientific impressions.

With the thoughts in mind as expressed herein, your chairman therefore desires to make the following recommendations: (1) That the Historical Section recommend and urge that the AMERICAN PHARMACEUTICAL ASSOCIATION shall arrange to publish at frequent intervals a request for the donation of historical documents, relics, etc., which will be placed in appropriate places in the Headquarters Building. There are many pharmacists and institutions who do not have conveniently located storage space who would gladly make such presentations:

(2) That the Local Branches, State Associations and other large pharmaceutical organizations be requested to arrange for the appointment of historical committees, the chairmen and members of which shall aid in the procuring of historical relics, documents, etc.;

(3) That the Deans of the various Colleges of Pharmacy be asked to coöperate more liberally with the Section on Historical Pharmacy. Each College of Pharmacy should be represented annually on the program of this Section by at least one paper; and it is suggested the Dean should be requested to assign annually a title for a paper to a member of his staff. If any member of the instructional corps of the several pharmaceutical institutions has served pharmacy for 25 years or more, the Dean or his representative should arrange for the presentation of a biographical sketch of such member to be presented to the Section on Historical Pharmacy, if one has not been sent at a previous occasion;

(4) That the various veteran associations should be requested to appeal to their members and that the older members of our own ASSOCIATION be requested to contribute more liberally of their personal contacts and information concerning Historical American Pharmacy; and

(5) That the secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION be requested to arrange to have available typewritten copies of permanent resolutions made from year to year at the meetings of this section so that the officers of this section may be guided accordingly.

Mr. Lloyd said he had some experience in gathering old and apparently valueless historical specimens. Some years ago he attempted to get some things for Mr. Whitebread from one of the veteran druggists—an old-timer, who had a glass globe that he considered valueless, but as soon as he knew that the Smithsonian wanted it, he put it in his window and you couldn't pry it away from him for anything. Diplomacy is needed to put any old possession in the museum. It is human nature to want what some one else wants.

The Chairman's recommendations were read:

(1) "That the Section on Historical Pharmacy recommend and urge that the AMERICAN PHARMACEUTICAL ASSOCIATION shall arrange to publish at frequent intervals a request for the donation of historical documents, relics, etc., which will be placed in appropriate places in the National Headquarters Building. There are many pharmacists and institutions who do not have conveniently located storage space who would gladly make such presentations."

Motion was made and seconded that the resolution be adopted.—Carried.

(2) "That the Local Branches, State Associations and other large pharmaceutical organizations be requested to arrange for the appointment of historical committees, the chairman and members of which shall aid in the procuring of historical relics, documents, etc."

Moved and seconded that the recommendation be adopted.—Carried.

(3) "That the Deans of the various Colleges of Pharmacy be asked to coöperate more

liberally with this Section. Each College of Pharmacy should be represented annually on the Section on Historical Pharmacy program by at least one paper; and it is suggested, the Dean should assign annually a title for a paper to a member of his staff. If any member of the instructional corps of the several pharmaceutical institutions has served pharmacy for 25 years or more, the Dean or his representative should arrange for the presentation of a biographical sketch of such member to the Section, if one has not been prepared on a previous occasion.

After some discussion on motion of C. O. Lee and a second, a change was made as follows: That "the Dean should be requested to assign annually a title for a paper to a member of his staff."—Carried.

(4) "That the various veteran associations should be requested to appeal to their members and that the older members of our own ASSOCIATION be requested to contribute more liberally of their personal contacts and information concerning Historical American Pharmacy."—Adopted.

(5) "That the secretary of the AMERICAN PHARMACEUTICAL ASSOCIATION be requested to arrange to have available typewritten copies of permanent resolutions made from year to year at the meetings of this Section, so that the officers may be guided accordingly."—Carried.

The report of the Secretary was called for and presented. It reported the activities of his office; the report was accepted.

Chairman Gershenfeld appointed the following Committee on Nominations: *Chairman*, H. W. Youngken, Arthur Osol and C. J. Zufall. "An Historical Note on Official Rosin Cerates," by J. W. England, was read by F. P. Stroup.

The next paper was read by Lieut. Commander L. H. Roddis on Henrik Ibsen. (No discussion.)

An illustrated paper by J. T. Lloyd on "The Development of the Mortar and Pestle" was presented. The author stated that mortars had been intimately connected with pharmacy and had grown up with it. He called attention to the development taking place in mortars since very early times up to the present day. The greatest change has been in materials. Previous to the Wedgewood mortars, marble, brass and bronze were used for mortars. The latter were not suited for chemicals. The author commented briefly on the pictures as shown on the screen.

The next paper was entitled, "An Interesting Collection of Mortars," by Charles H. LaWall and Millicent R. LaWall, which was shown with lantern slides by Arthur Osol.

The Secretary made reference to a Chinese mortar which he had seen in a Chinese drug shop. He also referred to a mortar in the same establishment where water power was used in connection with mortars. In the discussion, the dates of early mortars were asked for and it was brought out that one dated back to 1000 B.C. It was also stated that in New York there are quite a number of stores devoted entirely almost to the sale of mortars.

C. W. Ballard said that there is an antique shop near the pharmacy of Mr. Costello, who is well known for his collection of mortars, in which a specialty is the sale of mortars and pestles.

The next paper presented was on "Superstition, Credulity and Skepticism: Three Bugbears with Which Pharmacy Has Always Had to Contend," by Charles Whitebread. In the absence of the author it was read by the Secretary.

The report of the Historian, E. G. Eberle, was presented. It is part of these minutes.

THE HISTORIAN'S REPORT.

BY E. G. EBERLE.

Former editor J. P. Gilmour, of the *Pharmaceutical Journal and Pharmacist*, closes an article on "The Origins of British Pharmacy" by saying: "Before any piece of research work can safely be entered upon, the would-be investigator, if he is to avoid the risk of having been forestalled, must read up the literature of the relevant subject. Similarly, if there is to be a correct orientation and interpretation in other pharmaceutical interests and issues, there must be at least a reconnaissance of the ground to be traversed."

Ground was broken for the Headquarters Building on July 1, 1932. Introductory remarks were made by Dr. H. A. B. Dunning, chairman of the Building Committees in charge of the ceremonies, and were followed by brief addresses by: Dr. Charles Moore, chairman, Commission of Fine Arts; Mr. Walter D. Adams, president, AMERICAN PHARMACEUTICAL ASSOCIATION; Dr. Harry A. Fowler, president, Medical Society of the District of Columbia; Sir Henry S. Wellcome, honorary president of AMERICAN PHARMACEUTICAL ASSOCIATION, Dr. W. Bruce Philip,

president-elect of AMERICAN PHARMACEUTICAL ASSOCIATION. Dr. S. L. Hilton, chairman of the Council of the AMERICAN PHARMACEUTICAL ASSOCIATION, raised the first shovelful of earth.

Dr. Charles Moore said in part:

"When the AMERICAN PHARMACEUTICAL ASSOCIATION came to the Commission of Fine Arts with their project for a building to occupy a portion of the frontage of the square between Twenty-Second and Twenty-Third Streets, the Commission joyfully embraced the opportunity to peg down the last of the five spaces with a building appropriate to its close proximity to the Lincoln Memorial and devoted to a purpose at once significant and important to human welfare. It has been difficult—at times it seemed impossible—for the American pharmacists to meet the requirements of additional purchases of land, of costly materials and of gifts to the Government for widening Twenty-Third Street. Perhaps John Russell Pope's inspiring design for the AMERICAN PHARMACEUTICAL ASSOCIATION Building had much to do with the successful outcome of the tempestuous voyage through cross-seas stirred by conflicting winds, Congressional and otherwise. At any rate, we are here to-day to break ground for a building which shall stand as a symbol of ethics in trade, honesty and fidelity in ministering to human needs, and constant advance in the science of good health."

The building is now completed and Chairman Dunning's report will advise regarding the structure. Above the entrance is the following inscription:

"The American Institute of Pharmacy is dedicated to those who have given of their thought and endeavor to the improvement of Public Health and to the further advancement of Science in Pharmacy."

A number of pictures of the steps of progress are shown. A history of the Headquarters building is in contemplation. Fifty years ago in Chicago at the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION steps were taken to establish an international codex for potent medicaments. Quoting from a report of the secretary of the International Pharmaceutical Federation, Dr. T. Potjewijd, published in the October JOURNAL for 1932—in 1898 the proposition started in Chicago was taken over by Dr. Rommelaere who requested the Academie Royale de Medecine de Belgique to support a motion in which the Belgian Government was invited to take steps in this direction. Finally, in September 1902, the conference of Brussels took place, resulting in a number of medicaments being codified as to their method of preparation, composition and quality of active elements. In 1905, the resolutions of this conference were signed, through which fact conventional agreements on these potent medicaments were adopted. The last International Congress of The Hague in 1913 took over the proposition of the conference of Brussels to found a Secretariat International de Pharmacopœs. Prof. A. Tschirch and Prof. L. Van Itallie reported on the methods in which a similar secretaryship ought to function. In 1922, the Federation resumed its activities and expressed its wish that a second conference should be held. This conference convened in Brussels in 1925. The report is continued and accepts the decision that an international pharmacopœia is becoming more and more desirable, and careful consideration should be given to the possibility of establishing an international pharmacopœia. In addition, this report indicates the lines along which, in the viewpoint of the members of the Commission, a pharmacopœia of this type can be created. In conformity with a resolution of the General Assembly of the Federation this report was handed to the Belgian Government and to the Hygienic Department of the League of Nations.

In speaking of the Toronto meeting Secretary R. B. J. Stanbury said: "The Canadian-American Pharmaceutical Convention was unique in that it drew together representatives of the three great Anglo-Saxon Pharmaceutical Associations—those of the United States, Great Britain and Canada.

"It has undoubtedly brought about a better understanding both pharmaceutically and nationally between pharmacists of these three countries. It has served as a stimulus and inspiration to the members of the three organizations, who, on account of contact with one another, have received a new vision of their opportunities and responsibilities.

"Canadian druggists feel happy in having had an opportunity of giving a welcome to our cousins from across the line and our brothers from across the sea. Pharmacy is a profession of service, and we are grateful for having had some share in cementing its bonds."

The ASSOCIATION has considerable historical material which should as soon as possible be properly filed and arranged, as the conveniences for doing so have been inadequate. There has

been no great effort made for collecting material, but quite a number have expressed willingness and desire to contribute. The Leadbeater Pharmacy, Alexandria, Va., was acquired at an auction sale for the AMERICAN PHARMACEUTICAL ASSOCIATION on July 19, 1933; the purchase price was provided by L. Manuel Hendler of Baltimore; other contributions will be made, and as soon as it is possible to list the items a history of the pharmacy will be prepared for the records of the ASSOCIATION, with due credit to the donors.

The stock which laid the foundation of Edward Stabler's pharmacy in Alexandria was invoiced at £96, 2s and 3d. It was bought through the agency of Townsend Speakman, wholesale druggist of Philadelphia, June 25, 1792. The latter cautioned the buyer to reduce quantities ordered, "apprehending it most for thy interest for thee to have smaller quantities at first . . . till thou hast had some experience." The venture was a success—the stock, purchased by note, was paid for and doubled by the end of the first year, and the young apothecary married Mary Pleasants.

The first stock included three quart flint-glass bottles with glass stoppers, at 5 shillings each. Two of these bottles disappeared—one remains, which was billed as containing spirit of nitre and is part of the purchase for the AMERICAN PHARMACEUTICAL ASSOCIATION. An association in Alexandria contemplates establishing a museum in the storeroom and keeping it open for the public; if so, it is tentatively agreed that the articles purchased will remain in Alexandria so long as the museum is maintained. If not, the items will be moved to the Headquarters Building in Washington.

The clock dates back to the earlier years of the pharmacy. There are many records, books, orders, prescriptions, etc., which connect the history of the pharmacy with the present. A plate on the front counter records where Robert E. Lee received orders to proceed to Harper's Ferry to apprehend John Brown.

A partner in one of the firms was Richard H. Stabler, a former president of the AMERICAN PHARMACEUTICAL ASSOCIATION, 1870–1871. He died November 18, 1878, aged 58 years; was born and educated at Alexandria, Va., learned the drug business with his father, William Stabler, in this store. He was professor of Pharmacy in the School of Pharmacy of the National Medical College and afterward of the National College of Pharmacy at Washington.

Edward Stabler's earlier pharmaceutical experience was gained in the drug store of his brother, William, at Leesburg, Va. The Leadbeaters first entered into the history of this business in 1830, when John Leadbeater came to this country and was employed in this pharmacy, then owned by William Stabler, the son of Edward. Mr. Leadbeater married a daughter of Edward Stabler and became a partner in the firm of William Stabler & Bro., in 1844, and sole owner in 1852.

The "Spirit of Nitre" bottle, part of the first invoice, the order from Martha Washington, record books, book of formulas, orders from early Alexandria families, counter blotters and prescription files are probably the most valuable part of the purchase.

An outstanding historical collection was brought to this country by the purchase of E. R. Squibb & Sons from Jo Mayer of Wiesbaden. This has been described by Charles H. LaWall and made the subject of his report before the Conference of Pharmaceutical Research on Saturday, August 26th.

The Pharmacy exhibit at the "Century of Progress"—Chicago World's Fair—presents an outstanding opportunity for acquainting the public with the part of Pharmacy in the advancement of civilization, medical progress and public health service. Pharmacy has been allotted liberal space in the fountain circle—on the ground floor of the Hall of Science, among the groups that are related to pharmacy, completing its story to be told by the exhibit and dramatized in a manner that will impress its significance on the visitors.

The Remington Honor Medal for 1932 was formally awarded to E. G. Eberle on October 12th. The formal award for 1933 will be made to Secretary E. F. Kelly, probably in October. The Remington Medal was established in 1918 by the New York Branch of the AMERICAN PHARMACEUTICAL ASSOCIATION by suggestion of Dr. Hugo H. Schaefer. The following have been recipients of the honor: James H. Beal; John Uri Lloyd; H. V. Arny, H. H. Rusby, George M. Beringer, H. M. Whelpley, H. A. B. Dunning, Charles H. LaWall, Wilbur L. Scoville, Edward Kremers, E. Fullerton Cook, E. G. Eberle and E. F. Kelly.

A number of pharmacopœias have become official since last report. Danish, British, Japanese and a new edition of the Chinese Pharmacopœia has appeared.

The *Annalen der Pharmazie, Das Chemische Zentralblatt,* completed their centenaries.

It is regretted that the *Apotheker-Zeitung* (New York) has been discontinued after fifty-three years of useful service. Hugo Kantrowitz, the editor, has been an active member of the AMERICAN PHARMACEUTICAL ASSOCIATION for many years, and has been connected with the publication since its founding. During these many years our fellow-member has ably served the readers, most of whom are members of the New York German Apothecaries Society.

The Fourth Edition of the Pharmaceutical Syllabus, outlining the Course of Instruction for the degree of Bachelor of Science in Pharmacy, has appeared. Chairman J. G. Beard has ably directed the work of the Committee and the coöperation of the members and has given us a Syllabus which is not only useful and helpful, but reflects credit on pharmacy.

Leaflet No. 14—"Pharmacy as a Career" is one of a series devoted to a discussion of the professions as a career. It covers the following subjects: Definition and brief history of pharmacy, standards, functions, qualifications, opportunities, women in pharmacy, salaries, census, state requirements, registration, state board examinations, the schools and colleges, degrees, student expenses, closing with a table of schools and colleges, showing for each the total expense, enrollment and degrees awarded in 1932. The inclusion of a leaflet on our profession in this Career Series by the Office of Education is a further recognition of pharmacy by the Government, and the quotations taken from it are both encouraging and significant:

"As the educational requirements for entering the profession of pharmacy have increased there has been a corresponding recognition on the part of the Government of the professional qualifications of pharmacists."

The Council on Medical Education and Hospitals has adopted a resolution commending as one of the Essentials of a Registered Hospital that "the pharmacy of a hospital should be adequately supervised and should comply with State laws."

The centenary of the discovery of chloroform was celebrated by scientific bodies throughout the world. Three scientists are entitled to consideration in connection with the discovery; namely, Samuel Guthrie, of the United States; Baron von Liebig, Germany; and Eugene Soubeiran, of France.

The Fourth International Congress on Medicinal Plants and Perfume-Yielding Substances was held in Paris during the week of July 16th.

The Liebig celebration was held at Giesen, Germany, July 19th, arranged for by the Society for Chemical Industry. Baron von Liebig in his early years was employed in a German pharmacy.

On June 8th a collection of apothecary's ewers and drug jars was sold at Southeby's sale rooms in London. This was Glogowski's collection from Berlin. Mr. Geoffrey Howard, an authority on the subject, commenting on the collection, said: "I doubt if such an extraordinary collection of fifteenth-century pots has been offered for sale within a lifetime. The remarkable thing about these is that, whereas until the sixteenth century figures and inscriptions are hardly ever found, here we have a number of beautiful examples of fifteenth-century drug jars adorned with heads and the names of drugs. Even so, the fifteenth-century jars are distinctly crude in design compared with those of the following century.

A recent brochure of The Hahnemann Medical College of Philadelphia, dated 1932, contains a twelve-page description (pages 7 to 18) of the collection of the works of Paracelsus (1490–1541) which belonged to the late Dr. Constantine Hering and is now the property of the College. The works of Paracelsus are of deep interest to the student of the history of chemistry. Dr. Hering collected 189 volumes of the original works, commentaries and translations.

The Seventh International Congress of Military Medicine and Pharmacy, under the presidency of Dr. José Gonsalez-Granda, Inspector of Military Hygiene, was held at Madrid, May 29 to June 4, 1932. The outstanding entertainment function was held in the National Palace when the members of the Congress were received by the President of the Republic, S. E. D. Niceto Alcala-Zamora; thirty-five nations were represented.

Sir Henry Dale, director of the National Institute for Medical Research of England, was the principal speaker at the dedication of the new Merck Research Laboratory on April 25th.

The National Drug Trade Conference has undertaken the preparation of a reference list of drugs and chemicals which properly bear the poison label when dispensed otherwise than upon the prescriptions of physicians. It is a matter of impossibility to form a definition for poison which will serve as an accurate guide in every case, hence this work is very timely and will meet a neces-

sity long recognized. The Committee having this work in charge is composed of A. G. DuMez, S. L. Hilton, Robert L. Swain, A. C. Taylor and James H. Beal, *Chairman*.

During March 1932, biologists and medical men celebrated the fiftieth anniversary of the discovery by Robert Koch of the tubercle bacillus.

The 50th anniversary of the Red Cross was celebrated May 21, 1932. Florence Nightingale was born May 13, 1820; Jean Henry Dunant, May 8, 1828.

Among the Golden Anniversary celebrants of the state pharmaceutical associations in 1932 were the Maryland, Louisiana, Arkansas and Alabama associations. Mississippi celebrated this year.

The limitation of world manufacture of narcotics and the control of drug distribution is undertaken by an international convention signed by the United States at the Geneva Conference on the Limitation of the Manufacture of Narcotic Drugs. A copy of the report of the American delegation to this conference was made public by the Department of State, March 7, 1932, in which the delegation urged ratification of the convention by the Senate.

Decision has been rendered in Chile that only pharmacists holding degrees from the University of Chile can practice pharmacy. Responsibility for enforcement of the law is vested in a "director general of public health."

Final reports of the Committee on the Costs of Medical Care have been issued, a result of five years of intensive work and involving the expenditure of more than a million dollars.

The Pan-American Medical Congress was convened at Dallas; Theodore J. Bradley presided as chairman of the Section on Pharmacopœias.

Our fellow-member (1875), of London, England, Dr. Henry S. Wellcome—prominent pharmacist, researcher, archeologist and head of many other undertakings—was knighted by King George.

Professor Charles F. Heebner, of Toronto, was elected honorary president of the AMERICAN PHARMACEUTICAL ASSOCIATION.

Prof. H. G. Greenish, after 43 years of service on the staff of the School of Pharmacy (British Pharmaceutical Society) and as dean for many years, has retired. After making this note we learned of his death which occurred on August 2nd, aged 78 years. His work has been of great value in pharmacopœial revisions and standards for drugs and vegetable powders.

The *Journal de Pharmacie et de Chimie* for October 1932 is a "memorial number" commemorating the life and work of the late Dr. Leon Grimbert, who died September 25, 1932, aged 72 years. He was an outstanding member of the Commission for the revision of the French Codex. A list of titles of his contributions requires nine pages and, taking the character of the work represented into consideration, speaks for a record seldom surpassed.

Dr. W. A. Puckner, secretary of the Council, on Pharmacy and Chemistry since its organization, died October 1st. Prior to this service he had been a member of the faculty, School of Pharmacy, University of Illinois.

Emil Louis Boerner, first dean of the College of Pharmacy of the State University of Iowa, died May 28, aged 78 years. He had been a member of the AMERICAN PHARMACEUTICAL ASSOCIATION for 56 years. Gustave Scherling, of Sioux City, died May 13, aged 71 years; he had been a member of the ASSOCIATION for forty-nine years.

Henry P. Thorn, former president of New Jersey Pharmaceutical Association, died October 6th, aged 79 years; he had been a member of the A. PH. A. for fifty-four years.

Mrs. Emma Rouse Lloyd, wife of our veteran member, John Uri Lloyd, died November 28, 1932, aged seventy-four years. During the year prior to her death, Mrs. Lloyd had completed a genealogy of the families to which she belongs—"Clasping Hands with Generations Past."

Mrs. Catherine Diehl, widow of the late C. Lewis Diehl, died at her home in Louisville. Professor Diehl is remembered by his work for pharmacy.

In the foregoing death list of members, those who held membership for fifty years or more are given. The following have served pharmacy and record is here made of work well done; in the memory of the deceased we pause for a moment: Charles F. Beeton, Denver, Colo.; Alfred S. Burdick, Chicago, Ill.; S. Ross Campbell, Ventnor, N. J.; Nettie Canary, Chicago, Ill.; Sol. L. Clarke, Baltimore, Md.; Parker Cook, Baltimore, Md.; August Diehl, New York City; Raymond M. Duncan, Pierz, Minn.; John B. Ebbs, Waterbury, Conn.; Wilhelm Elfstrand, Lindstrom, Minn.; David M. Fletcher, San Francisco, Calif.; Seth Parker Grandy, Mesa, Ariz.;

Louis Frederick Grewe, St. Louis, Mo.; Julius Greyer, Cincinnati, Ohio; Lebrecht Gustav Heinritz, Holyoke, Mass.; Francis Emlen Holliday, New York City; Lewis B. Jones, Chicago, Ill.; John Krieger, Salamanca, N. Y.; Peter M. Lockie, Buffalo, N. Y.; Robert McNeil, Philadelphia, Pa.; Clare Arthur Onweller, Hudson, Mich.; Martin L. Porter, Danforth, Mo.; John A. Proben, Garden City, L. I., N. Y.; William August Puckner, Chicago, Ill.; Carrie Ritter, Springfield, Ohio; Carl Saalbach, Pittsburgh, Pa.; Gustav Scherling, Sioux City, Iowa; Lauriston S. Smith, Santa Monica, Calif.; Edward E. Stacy, Tuscola, Ill.; William Forsaith Steever, Harrisburg, Pa.; Edward Strahlmann, San Francisco, Calif.; Henry Prickett Thorn, Medford, N. J.; Carl W. Thurston, Wentworth, S. Dak.; Malcolm O. Tribble, St. Louis, Mo.; Nicholas Weisner, Philadelphia, Pa.; W. A. Wishart, Oakland, Calif.; John Austin Yates, Edmonton, Ky.

A paper on "C. Lewis Diehl," by John E. Kramer, was read by Arthur Osol. (No discussion.)

A paper by R. D. Bienfang on, "Dr. John Tennent and Seneca Rattlesnake Root," was read by title. Also a paper, "Binding Up a Wound," by Fred. B. Kilmer.

"The History of Sharp & Dohme," by A. R. L. Dohme and C. W. Brown. (Not complete.)

"The History of Smith, Kline & French Co. and Valentine H. Smith & Co., of Philadelphia," by J. W. England.

Then followed "The History of Frederick Stearns Pharmaceutical Manufacturing Co.," "The History of E. L. Patch Co," "The Growth of Parke, Davis & Co.," "The First Hundred Years of Norwich Pharmaceutical Co.," "Certificate of Incorporation and By-Laws of the Drug Institute of America, Inc.," "Story of the House of Squibb."

The Secretary stated that Chairman Gershenfeld had secured papers, on the history of some manufacturing houses and that he had promises of further papers along the same lines from other establishments. This material will be placed on file for a time and eventually made use of for the historical records presented by them.

J. T. Lloyd presented a paper on "Fragment of Early Drug History in Ohio, the Shakers of Lebanon," by his father, John Uri Lloyd.

He also gave a paper in abstract on "Gifts of the Gods to Primitive Man."

A paper on "The Early Days of Pharmacy in the West," by John T. Moore, was read by title.

Heber W. Youngken presented a paper on "American Pharmacognosists of the Nineteenth Century." This paper was illustrated and shown by lantern slides. Appreciation was expressed to the author of the paper.

The Secretary added his personal appreciation of the late Professor Sayre, who was sketched in the paper by Dr. Youngken and with whom he was associated for a while.

C. W. Ballard stated that some of the slides made by the late Dr. Otto A. Wall were used by him in some of his lectures.

Dr. Youngken remarked that in having slides made, Dr. Wall always had duplicates made up which he presented to teachers who were sufficiently interested to use them.

The First Session of the Section on Historical Pharmacy was then adjourned.

SECOND SESSION.

The Second Session of the Section on Historical Pharmacy was called to order by Chairman Louis Gershenfeld, at 2:10 P.M, September 1st.

A paper on "The History of Pharmacy in Kansas" was presented by title by Secretary Reese, of the Kansas Association.

Clyde M. Snow presented "A Résumé of the Activities of the Chicago Branch of the A. PH. A."

The Chairman stated that "this is the first of the local branches that we have a history of. We have been trying to get a history of all the state associations and the local associations, and I think this is probably the first of the local associations that we have a complete history of."

President W. Bruce Philip expressed his appreciation for the work of this Section.

The Chairman recognized Dr. Edward Kremers; he said in part: "It was in 1902 that the AMERICAN PHARMACEUTICAL ASSOCIATION established the historical section. After the committee had demonstrated the desirability of such work, the ASSOCIATION granted us a Section. It was the AMERICAN PHARMACEUTICAL ASSOCIATION, therefore, that started organized work in connec-

tion with the history of pharmacy. The French followed, and the Germans were the latest to follow. It has been my privilege to point out from time to time the desirability of doing detailed work in Pharmacy. If I have preached too much text, it has been to point out the lack of information that we have on so many aspects of the history of pharmacy."

Dr. Kremers read the paper—"The First Pharmacopœia."

Dr. Edward Kremers read excerpts from "A Contemporary of Lucca Landuci," and commented briefly in answering questions of Dr. A. R. L. Dohme.

The following papers by the same author were read by title: "Dover's Powder," "The Names by Which Paracelsus Has Been Known," "Paracelsus in Literature," "The Apothecary in Literature: A Contemporary of Lucca Landuci," "Rewriting of the History of Percolation." The following papers were also read by title: "History of the Iowa Pharmaceutical Association," by J. M. Lindly; also "Early Pharmacy and Pharmacists of Montana," by Charles E. Mollett, and "Historical Pharmacy in Minnesota," by Frederick J. Wulling.

The Chairman called on Dr. A. R. L. Dohme to present "The History of Sharp & Dohme." He did that interestingly, but very briefly, touching on the mile-stones of the history only. The history, when completed, is to be presented to the ASSOCIATION.

The Committee on nominations was called for and presented by Chairman Heber W. Youngken as follows: *Chairman*, Louis Gershenfeld; *Secretary*, C. O. Lee; *Historian*, E. G. Eberle; *Delegate to the House of Delegates*, J. T. Lloyd.

On motion duly seconded and carried, Dr. Edward Kremers was requested to cast a unanimous ballot for the nominees. It was so announced.

There being no other business, the Section on Historical Pharmacy adjourned.

REPORT OF THE COMMITTEE ON MONOGRAPHS.

(See Minutes, Scientific Section, A. PH. A., page 1165.)

The Monograph on Aconite consists of five complete, full chapters: Chapter I on Botany, Chapter II on Pharmacognosy, Chapter III on Chemistry, Chapter IV on Pharmacology and Chapter V on Therapeutics.

All the chapters, with the exception of IV and V, are now ready for publication. The latter, however, will be completed this Fall.

Following the corrections and criticisms of the typewritten monograph by the Committee, the monograph should be finished sometime this year.

The Committee on Monographs.

E. E. SWANSON, *Chairman*,
W. J. HUSA,
C. J. ZUFALL,
H. W. YOUNGKEN,
J. C. MUNCH.

THE VALUE OF THE A. PH. A. RECIPE BOOK.*

BY J. LEON LASCOFF.

"Chairman E. Fullerton Cook has asked me to select from the Recipe Book for exhibit purposes, about 30 or more of the most important preparations for which there is a large use in this country at this time. Knowing that 30 preparations are not sufficient to do justice to the importance of this volume, I have prepared about double that number.[1]

* Report made to Joint Session, Scientific Section and Section on Practical Pharmacy and Dispensing. Also, as part of the Symposium on Practicing Professional Pharmacy.—See page 1021, October JOURNAL.

[1] These were exhibited.

"It is a known fact that many drug stores (not pharmacies) have failed recently. The failures have been due mainly to cut-prices. It is self-evident that now, more than at any other time, the pharmacist should begin concentrating on prescription practice. The time is ripe now for the approach of the pharmacist to the physician, for this very important reason: There has been so much discussion concerning socialized medicine that the physicians are looking for every conceivable opening to protect themselves for the future. They are therefore 'ready for co-operation' with us.

"I met a number of physicians who are desirous and who do prescribe U. S. P. and N. F. preparations. They prescribe very little from the Recipe Book for the simple reason that they are not sufficiently acquainted with it, because not enough publicity has been given to the book.

"Concerning the pharmacists who have purchased the book, I can only say, that to my knowledge, they have been pleased. I can truthfully state that we have not received any justifiable complaints. Regarding those which we did receive, the complainant was usually at fault, having prepared the formula carelessly. I have received many letters saying that this A. PH. A. Recipe Book is certainly 'the best of its kind.' One pharmacist recommends it to another. This is easily shown by the fact that the publishers have disposed of 4580 volumes.

"A few nights ago, a prominent physician came to our Pharmacy and asked me whether I could fill a prescription calling for Schlesinger's Solution. It had to be sterilized for injection. This was done and sent to him the next morning. He sent me the following letter:

> 'I wish to acknowledge with thanks the prompt receipt of Schlesinger's Solution.
>
> 'You may recall that when I heard from Baltimore that Mr. F. was coming up to New York and that he was to receive Schlesinger's Solution injections, I was at a loss to know what they were and so I consulted you. We both then consulted the Recipe Book and found the formula of Schlesinger's Solution.
>
> 'I am very glad to say that the solution is working very satisfactorily.
>
> 'Enclosed please find another prescription for double the amount previously called for.'

"In this August issue of the *Druggists Circular*, the following reply was made to a request for books on pharmaceutical and general formulas:

> 'To F. W. N., Ohio.—For pharmaceutical and general formulas you will find the A. PH. A. Recipe Book, the Standard Formulary, Henley's and Pharmaceutical Formulas (British) rich mines. Every druggist ought to have at least two of, and preferably all, these books. *The harder the times, the more he needs them, as they will point out ways in which he can make money, when selling goods at cut-prices may be causing him to lose money.*'

"I cannot enumerate the number of times, I have been asked for the formulas for certain preparations which are contained in the Recipe Book. While preparing this paper, I received a call for the formula for Doranti's Solution (on display here). The pharmacist did not have a Recipe Book, but sent in an order to Lippincott when he heard of the many advantages this book offered.

"The first edition of the Recipe Book consists of 1621 formulas grouped as follows:

777 Pharmaceutical Formulas
373 Hospital Formulas
34 Dental Formulas
66 Diagnostical Reagents and Clinical Tests
28 Veterinary Formulas
45 Photographic Formulas
184 Cosmetic Formulas
45 Flavoring Extracts
69 Technical and Miscellaneous Formulas

"At the present time the Committee is preparing for a revision of Pharmaceutical Recipe Book Number 1.

"On March 16, 1933, *Bulletin No. 1*, prepared by your chairman consisting of twenty pages containing sixty formulas, voting sheets and comments on individual items, was mailed to all the members of the Committee. A compilation of the returns on this bulletin showed that a large majority voted for the inclusion of the new formulas.

"Several days ago five new bulletins were mailed. These bulletins include additional new Pharmaceutical Formulas, formulas for Stains and Reagents, a table of Doses, Dental Formulas and a questionnaire as to whether or not to include in the Recipe Book No. 2 various suggestions presented.

"I was requested to make this paper as short as possible not to exceed a reading limit of ten minutes. I have not, therefore, given the results of the votes taken on the various bulletins already issued. However, I may safely say that a majority were in favor of the items in the approximate proportion of 85% yes and 15% no. All suggestions and criticisms will be considered in due time, and will be submitted before a final vote is taken. I am taking this opportunity to thank all the members of the Committee for their valuable coöperation and prompt replies.

"The following pharmaceutical preparations are on display here:

'Mixture of Mercuric and Potassium Iodide;' 'Astringent Eye Wash;' 'Aromatic Elixir of Glycyrrhiza;' 'Wadsworth's Solution;' 'Yellow Astringent Lotion;' 'Elixir of Calcium Bromide;' 'Phenol Gargle;' 'Hiccough Mixture;' 'Compound Glycerophosphate Elixir;' 'Compound Resorcinol Lotion;' 'Astringent Lotion;' 'Elixir of Barbital Sodium;' 'White Lotion;' 'Ethereal Liquid Soap;' 'Syrup of Yerba Santa;' 'Iron Citrate Mixture:' 'Inhalation Fluid;' 'Thiersch's Solution;' 'Elixir of Salicylic Acid;' 'Menthol Dusting Powder;' 'Bismuth Paste;' 'Bismuth Subgallate Dusting Powder;' 'Whitfield's Ointment;' Whitfield's Ointment with Lanolin; 'Arning's Tincture;' 'Aromatic Syrup of Cascara;' 'Tincture Iron Acetate, Ethereal,' 'Hemorrhoidal Suppositories.'

"The following are the Hospital Formulas:

'Barium Sulphate Enema (S. H. F.);' A. B. C. Diuretic Mixture (B. N. Y.);' 'Poison Ivy Lotion (McNair's);' 'Compound Mixture of Colchicum (B. N. Y.);' 'Compound Chloral Mixture (V. C. N. Y.);' 'Anti-Rheumatic Mixture No. 1 (N, Y. P. G. H.);' 'Diuretic Mixture (V. C. N. Y.);' 'Oeschner's Antiseptic Solution;' 'Ruggle's Tincture;' 'Vincent's Solution for Trench Mouth;' 'Syrup of Chloral;' 'Calamine Oil Lotion;' 'Pusey's Calamine Liniment;' 'Elixir of Iron with Copper (Lankenau Hospital);' 'Creosote and Phenol Inhalant.'

"The following are the Dental formulas:

'Liquid Dentrifice,' 'Detergent Tooth Paste.'

"The following Stains and Reagents are on exhibit:

'Ringer's Solution;' 'Fehling's Solution (Alkaline);' 'Fehling's Solution (Copper);' 'Benedict's Solution (Qualitative);' 'Benedict's Solution (Quantitative);' 'Doranti's Solution;' 'Loeffler's Solution;' 'Nylander's Reagent;' 'Zenker's Fluid;' Gram's Solution;' 'Esbach's Reagent;' 'Solution of Bismarck Brown.'

"Incidentally, as Chairman of the Propaganda Committee on U. S. P. and N. F. of New York State, I have called a Joint Meeting of Physicians and Pharmacists for sometime during the latter part of the month of October. At this meeting, we are going to discuss the official preparations and those of the Recipe Book.

"The Recipe Book is becoming a valuable book in the prescription work. In our Pharmacy we find it indispensable, having many occasions to use it, along with the Pharmacopœia and Formulary. Every pharmacist should have a copy of the 'AMERICAN PHARMACEUTICAL ASSOCIATION Recipe Book.' He will be well repaid.

"In conclusion, I am sure that with constant detailing on the part of the pharmacist to the physician the Pharmaceutical Recipe Book will become one of the foremost reference books in pharmacy. It will prove of invaluable aid to the physician, the dentist, the veterinarian, the laboratory technician, the cosmetician and the manufacturer as well as the retail pharmacist."

The other addresses of the Symposium on Practicing Pharmacy will be published in succeeding issues of the JOURNAL.

EDITORIAL NOTES

Because of Association Reports, which required many pages, publication of a number of papers and items in this Section had to be deferred.

Secretary E. F. Kelly, AMERICAN PHARMACEUTICAL ASSOCIATION, is in receipt of the following note from Mrs. Alice Greenish, widow of the late Dr. H. G. Greenish, *Honorary Member:*

"I wish to thank you very much for your kind letter of sympathy for me in my great sorrow.

"I can assure you that my husband was never happier than when helping fellow-pharmacists and it is very gratifying to me to know how highly his work was appreciated. Will you please convey to the Pharmaceutical Association my sincerest thanks?"

THE INTERNATIONAL STANDARD FOR THE ŒSTRUS-PRODUCING HORMONE.

At the request of the officers of the Permanent Commission on Biological Standards of the Health Organization of the League of Nations, the Board of Trustees of the U. S. Pharmacopœial Convention has agreed to assume the responsibility for distributing the International Standard for the Oestrus-Producing Hormone in the United States. Supplies of this material have just been received from the National Institute for Medical Research, London, where the International Standard has been prepared. This Standard is now available for the use of manufacturers of preparations of this Hormone, for the purpose of establishing for their products a uniform potency in the terms of the International Unit; one International Unit consists of 0.0001 mg. of the Hormone issued by the League of Nations. This material is also available for those carrying out important therapeutic researches in this field.

A memorandum suggesting the course to be followed in using the International Standard, has also been supplied by Dr. H. H. Dale, Director of the National Institute for Medical Research. Those who are interested in securing this memorandum or the International Standard, should communicate directly with E. Fullerton Cook, Chairman of the U. S. P. Committee of Revision, 43rd Street and Woodland Avenue, Philadelphia.

MEDICINALS PRODUCED IN PERU OFFER COMPETITION TO AMERICAN PHARMACEUTICALS.

The Peruvian pharmaceutical industry has developed rapidly during the past two years, and has affected the imports of drug products. Many Peruvian chemists who have studied or been employed abroad manufacture medicines and chemicals. The prices at which the locally manufactured pharmaceutical products are offered are far below those of similar imported commodities. As price is the dominant factor in the Peruvian market at the present time, the national products enjoy a decided advantage. Local drug stores recommend national products, the containers and wrappings of many of which closely resemble several well-known American drug products.

NATIONAL PHARMACY WEEK WINDOW DISPLAY CONTEST COMMITTEE.

BY ANTON HOGSTAD, JR., CHAIRMAN.

The following have been appointed by the National Pharmacy Week Executive Committee to serve as the judges in connection with the 1933 National Pharmacy Week Window Display Contest: Dr. Frank B. Kirby, *Chairman*, N. Chicago, Ill.; Prof. Robert Terry, University of Illinois, School of Pharmacy, Chicago; Paul J. Mandabach, Chicago; Dr. Prentiss McKenzie, Chicago; George L. Secord, President, Chicago Retail Druggists' Association, Chicago.

The Chairman of the National Pharmacy Week Executive Committee has requested the secretaries of the respective State pharmaceutical associations to forward photographs of the window displays that were awarded first prize in the various state contests. Such photographs will be immediately forwarded to the National Pharmacy Week Window Display Contest Committee of which, as will be noted above, Dr. Frank B. Kirby is serving as chairman.

The 1933 contest closes December 31st, and all photographs should be mailed as soon as possible so as to facilitate the work of the National Pharmacy Week Window Display Contest Committee.

This Committee will select the national winner, said winner to be awarded the Grand Prize, a silver loving cup, donated by the Federal Wholesale Druggists' Association. After the winner has been decided upon, the National Pharmacy Week Window Display Contest Committee will report same to the National Pharmacy Week Executive Committee, which in turn will release the announcement to the pharmaceutical press, shortly after January 1, 1934.

PERSONAL AND NEWS ITEMS.

The Wellcome Prize, including the Wellcome Gold Medal, for 1933 has been awarded to Major Edgar Erskine Hume, Medical Corps, U. S. Army, librarian of the Army Medical Library, Washington, for his essay on "The Value of Studies in Health and Sanitation in War Planning." The Wellcome Prize and Medal were established by **Sir Henry S. Wellcome,** London, in 1916, and are awarded annually through the Association of Military Surgeons of the United States.

Dr. V. E. Henderson, professor of pharmacy and pharmacology at the University of Toronto, and Dr. G. H. W. Lucas, associate professor, have been experimenting for the past two years with cyclopropane.

Ohio Northern University recently conferred upon **Dean C. B. Jordan** the honorary degree of Doctor of Science. President Williams, in presenting this degree, stated that it was presented because of Dean Jordan's accomplishments as "Dean of the School of Pharmacy at Purdue University; author of many published papers in pharmaceutical science; authority on pharmaceutical education; chairman of the Executive Committee of the American Association of Colleges of Pharmacy for many years past; author of the important textbook for pharmacy and medical students."

The Minneapolis Association of Retail Druggists on November 28th sponsored a testimonial dinner in honor of John W. Dargavel who was elected secretary of the National Association of Retail Druggists at its last convention.

F. C. Schramm, pharmacist of Salt Lake City, has been moved up in line as officer in the Supreme Council of the Ancient and Accepted Scottish Rite of Freemasonry, at the recent meeting in Washington.

Dean Frederick J. Wulling has delivered a series of radio addresses which have received appreciation of the "listeners in," and served the public and pharmacy.

The J. K. Lilly Fellowships, Purdue University, provide for a year's graduate study for two high-ranking scholars. One of them has been granted to G. L. Baker, who is a graduate of the Colorado University College of Pharmacy and of the University of Florida School of Pharmacy, having received the degree of Master of Science from the Florida school. The other recipient is Karl Kaufman, who is a graduate of the Ohio State University College of Pharmacy.

BANQUET IN HONOR OF THE INSTITUTION OF NORTHERN NEW JERSEY BRANCH, A. PH. A.

About one hundred guests, visitors and friends attended a banquet in Newark, November 20th, in honor of the instituton of New Jersey Branch, A. PH. A. Robert William Rodman presided as toastmaster; the speakers were President Robert L. Swain, Secretary E. F. Kelly and Dr. Ernest Little, President of the newly organized branch. The following were guests of honor: Walter R. Woolley, President, New Jersey Pharmaceutical Association; Prescott R. Loveland, Secretary, New Jersey Pharmaceutical Association; Robert P. Fischelis, Secretary, New Jersey State Board of Pharmacy; Frank H. Eby, President, Philadelphia Branch, A. PH. A.; Ernst A. Bilhuber, President, New York Branch, A. PH. A.; Charles W. Holton, Treasurer, AMERICAN PHARMACEUTICAL ASSOCIATION; Henry V. Arny, Dean, Columbia University College of Pharmacy; Eugene G. Eberle, Editor, JOURNAL OF THE AMERICAN PHARMACEUTICAL ASSOCIATION. The latter showed slides of the steps in the progress of the American Institute of Pharmacy, also of proof sheets of the first U. S. P., a statement from the Mercer Pharmacy in Fredericksburg, an order from Martha Washington to Leadbeater Pharmacy.

The following constituted the banquet committee, George C. Schicks, *Chairman;* Louis Wait Rising and Robert William Rodman. The officers of the Branch are: *Honorary President,* Philemon E. Hommell; *President,* Ernest Little; *Vice-President,* George C. Schicks; *Secretary,* Louis Wait Rising; *Treasurer,* Adolph F. Marquier. The pleasures and interest of the occasion were enhanced by the attendance of ladies.

OBITUARY.

JOSEPH M. ARMITAGE.

We are just in receipt of belated advice of the sudden death of our fellow-member, Joseph M. Armitage, of Princeton, Minn., on July 6th, of apoplexy. The deceased was born in Limerick, Ireland, September 16, 1875, the son of Thomas and Agnes Armitage. The family resided in Canada for several years; thereafter, they lived in Bay Mills, Mich., Philadelphia and Lilly, Pa., and then, in 1898, located in Princeton, Minn. Here, Dr. Armitage purchased a drug store and his brother Joseph assumed the management; in 1923 Miss Margaret entered the pharmacy with her uncle and has conducted the business with him until his demise, when she assumed full management and ownership. The former was a conservative business man and was devoted to the profession of pharmacy.

Mr. Armitage was active in the Masonic bodies and highly regarded by his fellow-citizens. He is survived by Mrs. T. L. Armitage and her two daughters, Misses Margaret and Mary.

WALTER V. SMITH.

Walter Valentine Smith, member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1902, died November 8th, at his home in Germantown, Philadelphia, aged 65 years. He was the son of Valentine Smith, founder of one of the oldest wholesale drug houses of Philadelphia.

The deceased was educated in the public schools of Philadelphia, Nazareth Hall and Lauderback's Academy, and was graduated from the Philadelphia College of Pharmacy in 1887. He assumed management of Valentine H. Smith & Co., on the death of his father. In 1929 this firm was consolidated with Smith, Kline & French Co., of which corporation he became president. Mr. Smith was active in the affairs of the National Wholesale Druggists' Association, as vice-president and as member of the Board of Control for a number of years.

He was a member of Pennsylvania and New Jersey pharmaceutical associations, president of Philadelphia Drug Exchange 1900–1902, and of other drug organizations. For a number of years until his demise he was a member of the board of trustees of his *Alma Mater*.

He was a member of the Masonic bodies and interested in church work, a trustee of the Bethlehem Presbyterian Church.

His wife, Mrs. Harriet B. Smith, two daughters and four grandchildren survive; also, three sisters and a brother, Howard E. Smith.

WILLIAM H. OWENS.

William H. Owens, Granville, N. Y., member of the AMERICAN PHARMACEUTICAL ASSOCIATION since 1917, died in Jersey City Medical Center, November 3rd. He was born in Wales, December 31, 1866, and came to Granville with his parents in 1870.

Mr. Ownes was graduated from New York College of Pharmacy in 1905, and soon after graduation purchased the drug store of C. J. Hake in Jersey City. He was a member of Hudson County Retail Druggists Association, and New Jersey Pharmaceutical Association. He was chairman of the Advisory Board of La Fayette Trust Company and took an active part in civic affairs. He was a member of La Fayette Reformed Church, Granville, where the funeral services were held. He is survived by his brother, Glenn Owens, of Granville.

ADOLPH F. MENGES.

Adolph F. Menges, prominent Madison, Wis., druggist for 42 years, died at his home October 20th, aged 69 years.

Mrs. Menges took an active part in the meeting of the AMERICAN PHARMACEUTICAL ASSOCIATION, as chairman of the Ladies Auxiliary. Mr. Menges' health did not permit him to take an active part in the convention.

Graduated from the University of Wisconsin in 1886, Mr. Menges opened a pharmacy on his own account in 1891. For a time he operated three other drug stores, being the first to operate a group of pharmacies in Madison. He was a charter member of the Wisconsin board of pharmacy, on which he served from 1895 to 1905. He was also a charter member of the Wisconsin Pharmaceutical Association.

In addition to his drug store operations, Mr. Menges was prominent in Madison business life through his connections with other institutions. He was the first president of the Commercial National Bank, now the Commercial State Bank. He was one of the founders

of the National Guardian Life Insurance Co. and was a vice-president of that concern at the time of his death. He also was a director of the Union Trust Co.

HARRY ARMAND STEBBINS.

Harry A. Stebbins, assistant manager of the New York office of Merck & Co., New York, died October 14th, in Chicago, where he was attending the exhibit of his house at the Century of Progress Exposition. He was fifty-seven years old.

Mr. Stebbins entered the employ of the New York office of Powers & Weightman in 1900. When in 1903, that company was merged with Rosengarten & Co., also of Philadelphia, becoming the Powers - Weightman-Rosengarten Company, he continued in its service. He was with the company thirty-seven years, until 1927; in that year the company was sold to Merck & Co., and Mr. Stebbins became assistant manager of the New York office.

He was a member of the New York College of Pharmacy, and of the Drug and Chemical Club.

The death has been announced of M. Auguste Baudot, of Dijon. His volume on the ancient drug pots of Burgundy is familiar to all who have studied the history of old French pharmaceutical pottery.

Dr. Albert Calmette, of the Pasteur Institute of Paris, died October 29th, aged seventy years; and on November 3rd, Dr. Emil Roux, the director of the Institute, passed away, aged eighty years. They had been life-long friends.

Pharmacist, Rear Admiral Dr. Shuhei Isono, retired, passed away in Tokyo, October 16th, aged 56 years.

SOCIETIES AND COLLEGES.

AMERICAN PHARMACEUTICAL MANUFACTURERS' ASSOCIATION.

Early, sound, constructive revision of the Federal Food and Drugs Act was approved by the American Pharmaceutical Manufacturers' Association in its Fall business meeting, held in the Washington Hotel, Washington, D. C.

In a resolution, stating its attitude toward the proposed revision of the drug law, the association, while approving the purpose of the so-called "Tugwell" bill, "regretfully disapproved" that measure because of its form. Preparation of a satisfactory, effective substitute for the "Tugwell" bill was suggested, and it is planned to present such a substitute at the hearings of the "Tugwell," or Copeland, bill.

Hearings on the Copeland Bill by the special sub-committee of the Senate Committee on Commerce have been tentatively scheduled to begin December 7th.

Walter G. Campbell, chief of the Food and Drug Administration, addressed the pharmaceutical manufacturers on the need for revision of the Food and Drugs Act. He expressed his willingness to accept any "reasonable" amendments to the Copeland Bill, designed to achieve the ends desired by the Administration, without undue hardship to legitimate business. Following this, Charles Wesley Dunn, chief counsel of the Association, suggested many changes in the pending bill. His suggestions will be the basis of the Association's preparation of a substitute measure.

Dr. F. J. Cullen, chief of drug control under the Federal act, attended the session and answered questions by members of the Association on matters of labeling and other practices under the Food and Drugs law.

The pending NRA code for pharmaceutical manufacturers was discussed. The draft of this code is still being amended from time to time and it has not yet reached the form in which it probably will be brought to hearing.

A. O. A. C. ADOPTS PLAN SOLICITING ENDOWMENT.

The Association of Official Agricultural Chemists closed its forty-ninth annual meeting with the adoption of a plan to solicit endowment of its research work by some philanthropic foundation and by election of a Canadian as its *President* for the first time in its history, he being R. Harcourt, of the Ontario Agricultural College, Guelph, Canada.

Other officers for the coming year are: *Vice-President*, F. C. Blanck, United States Bureau of Chemistry and Soils, Washington; *Secretary-Treasurer*, W. W. Skinner, Bureau of Chemis-

try and Soils, Washington; and additional *Members of the Executive Committee*, H. H. Hanson, Dover, Del.; C. C. McDonnell, Washington; H. R. Kraybill, La Fayette, Ind.; and the *Retiring President*, Dr. J. W. Kellog, Harrisburg, Pa.

The resolution authorizing the president to appoint a committee to interest foundations engaged in educational or public welfare activities in endowing research work for the Association was in response to a suggestion advanced by Dr. J. W. Kellogg in the annual address of the president. Taking as his topic "The Regulatory Chemist of To-day and To-morrow," Dr. Kellogg attempted an assay of the Association and an estimation as to how it would fit into the picture of the "new deal."

NEW JERSEY BOARD OF PHARMACY.

Following an impressive custom established several years ago, certificates of registration were awarded to 87 newly registered pharmacists by Governor A. Harry Moore at the State House, Trenton, on Tuesday, October 24, 1933. The exercises incident to the awarding of these certificates were presided over by Vice-President James A. Bauman, of the Board of Pharmacy, and addresses were made by Governor A. Harry Moore, Secretary Prescott R. Loveland of the New Jersey Pharmaceutical Association, and Secretary Robert P. Fischelis of the New Jersey Board of Pharmacy. The various chapters of the Code of Ethics of the AMERICAN PHARMACEUTICAL ASSOCIATION which was signed by all of the registrants were read by Albert J. Smith, C. Graham McCloskey and Dean B. Crawford, members of the Board.

Governor Moore, in his remarks to the newly registered pharmacists, urged them to so conduct their professional affairs as to make it unnecessary for the state at any time to revoke their license to practice.

TEXAS PHARMACEUTICAL ASSOCIATION.

The 1934 meeting of Texas Pharmaceutical Association will be held at Mineral Wells, and will include the 12th annual drug show. The Executive Committee convened in Dallas, the following attended the meeting:

Lee Stinson of Snyder, Association President; Earl T. Phillips of Big Spring, Vice-Chairman of the Committee; Walter D. Adams of Forney, Secretary-Treasurer; John B. Ray of Abilene, Henry F. Hein of San Antonio, E. B. Oliver of Longview, Sam P. Harben of Richardson, B. B. Brown of Dallas, C. C. Harris of Houston and Lee Tyler of Houston, Secretary of the Houston Pharmaceutical Association. Also visiting the group were C. B. Allison of Dallas, President, and Walter H. Cousins of Dallas, Secretary of the Texas Board of Pharmacy, who were welcomed to the meeting; P. V. Keating, public relations director and assistant editor of the *Texas Druggist*, and Miss Mary Ivey, assistant to Secretary Adams.

RICHMOND RETAIL DRUGGISTS' ASSOCIATION.

The Richmond Retail Druggists' Association was organized on August 21st, and has held several well-attended meetings. Membership in the association is restricted to registered and assistant registered pharmacists, proprietors and managers of retail stores. Almost 100% of the retail stores are represented in the organization. The regular meeting date is the second Monday in each month at 8:00 P.M. at the Medical College of Virginia. Dr. W. G. Crockett is the secretary.

RHO CHI REPORT.

An 8-page bulletin reports the annual Rho Chi meeting in Madison, Wis.; it includes the reports of the National President, National Secretary and National Treasurer, and a message from the National President, Glenn L. Jenkins. The bulletin concludes with a summary of 16 Chapter reports to the 1933 convention.

AUSTRIAN PHARMACEUTICAL SOCIETY.

The meeting of the Austrian Pharmaceutical Society was held October 20th, in Vienna. The president of the Society is Dr. Richard Firbas and the secretary is our *honorary member*, Dr. Hans Heger. Among the contributors to the program were Prof. Dr. R. Wasicky, "Pharmacy and Biology," and Prof. Dr. L. Kofler, on "Microchemistry of the Opium Alkaloids."

OFFICERS OF NEW YORK DRUG AND CHEMICAL GROUP.

The following officers were elected by New York Drug and Chemical Group: *Chairman*, Samuel W. Fraser; *Vice-Chairman*, Herman G. Weicker; *Treasurer*, S. Barksdale Penick;

Secretary, Ray C. Schlotteerer; *Executive Committee*, Gustave Bayer, James S. Dahl, J. F. Hayes, Joseph A. Huisking, Warner James, David L. Kaltman, Paul Muller, John Powell, John J. Reiner, A. A. Teeter, A. A. Wasserscheid; *Representative of the Section as Director in the Board*, George Simon. At the suggestion of the nominating committee an advisory council was created, which consists of the latest five former chairmen.

LEGAL AND LEGISLATIVE.

FACT-FINDING INQUIRY ON PROFITEERING CHARGES.

"Elimination of profiteering and strict compliance with codes is to be the present concern of the National Recovery Administration.

"Returning from a speaking and investigating tour of the Middle West, Administrator Hugh S. Johnson declared that most of the complaints against NRA are caused by failure to comply with codes in effect.

"A hearing has been scheduled for December 12th, before Division Administrator A. D. Whiteside, to consider all complaints of profiteering by industries operating under NRA codes. Agricultural commodities and those not covered by codes will not be considered. The hearing, which will be conducted as a fact-finding inquiry, will receive complaints that retailers and manufacturers are making unjustifiable price increases and blaming them on increased costs of operation under their codes."

A. G. MURRAY, AID TO CONSUMERS' BOARD.

The Food and Drug Administration has named A. G. Murray, senior chemist, to cooperate with the Consumers' Advisory Board in the hearings of industrial codes pertaining to food, drug and cosmetic products. Through Mr. Murray, the Administration will make available for the protection of the consumer the technical information of its staff and the experience gained during 27 years of administration of the Food and Drugs Act.

Mr. Murray will advise in the formulation of codes for the pharmaceutical, package-medicine and cosmetic industries. Consumer protection factors in advertising, labeling, sanitary conditions and sale of harmful preparations will, so far as possible, be made to conform with the proposed new Food and Drugs Act which will come up for hearing on December 7th.

WHOLESALE DRUGGISTS' HEARING ON CODE.

The wholesale drug trade took no formal part in the hearing, November 13th, on the proposed code for the general wholesaling or distributing trades. Dr. H. J. Ostlund, representing the National Wholesale Druggists' Association, and R. E. Lee Williamson, representing the Federal Wholesale Druggists' Association, were present merely as observers.

Officials of the NRA had promised the wholesale drug trade a separate code, but it was said that that was prior to the adoption of a plan for a general wholesale code. However, with a view of ironing out the situation and if possible, meeting the request of wholesale druggists, an informal conference of wholesale druggists with Dr. Kenneth Dameron, Deputy Administrator, was held November 20th.

RETAIL DRUG COUNCIL PLAN OUTLINED TO ASSOCIATIONS.

Problems of organization occupied the newly formed National Retail Drug Trade Council, but data are not yet in hand for fixing the code to be added to all retail prices.

Instructions for setting up local retail drug councils in every congressional district and in the major metropolitan centers were sent out to all state pharmaceutical associations. This work is to be completed before January 1st, and preliminary regulations for establishing the local groups and defining their duties and powers were issued with the approval of the National Recovery Administration.

NEW YORK PHARMACEUTICAL CONFERENCE RESOLUTIONS.

The New York Conference adopted resolutions seeking to re-instate the Stop Loss provision. It was urged that the term "cost" should be defined as the printed and published wholesale cost as issued by various manufacturers, or as published in the recognized price catalogs of the drug trade. That Pro-

visions be made for identifying merchandise. Modification is sought of Article Nine, Section 1, Paragraph E and Schedule A, Section 4, Paragraph A.

LOCAL AND STATE LEGISLATION.

Drug stores in Reno, Nevada, may not sell cigarettes. A city ordinance prohibiting such sales has just been sustained by the State Supreme Court, which ruled that the action was within the police powers of the municipality. A price war was responsible for the ordinance, the drug stores being held by the city officials to be at fault in underselling established tobacconists.

Colorado may finance a $3,000,000 public works program by means of a cigarette tax. Governor Johnson has stated that he may include such a proposal in his forthcoming call for a special session of the Legislature.

Montana's new chain store tax, enacted by the 1933 Legislature, is being attacked in court by the Standard Oil Co., which claims that filling stations and bulk storage plants are not retail and wholesale stores within the meaning of the act.

West Virginia's chain stores tax will be the subject of a hearing, December 18th, before a three-judge Federal court. The constitutionality of the new act is being attacked by several chain store organizations.

We are advised by the Houston Retail Druggists Association of a plan which may have dangerous possibilities and druggists should be warned, so that they may use their influence to frustrate the spread of this plan.

"The plan seems to be to send a high-grade salesman into the community and first contact the ministers and priests of all churches in an effort to get the ladies of their church into a meeting. At this meeting the need of church funds is skilfully used to induce interest in the plan. A number of ladies are invited to sign up with the company, agreeing to use their influence in getting all ladies of the church to buy certain brands of merchandise. Labels are saved, collected and sent in to the company for a 2% commission which is given to the church."

BOOK NOTICES AND REVIEWS.

Ibañez in his *Analisis de Alimentos* has very successfully adhered to his plan of compiling a manual of practical value to the Spanish pharmacist. His thorough understanding of the agricultural and industrial problems of Spain and his sound scientific knowledge has enabled him to present very lucidly the immense service that a country pharmacist, with adequate training, can render his community, not only from the hygienic point of view, that is, detecting adulterations, but by giving the necessary help to farmer and small manufacturer.

In many regions of Spain the problems of adulteration are relatively unimportant; on the other hand, many abnormalities may be observed due to defective elaboration. It is in these small communities, where the principal natural resources are agricultural and where exist many industries of food products derived from them, that the pharmacist has a definite opportunity to promote his own and the community's welfare.

The book is divided into two parts; the first consists of the lectures given for the third time at the Real Colegio de Farmacéutico de Madrid, and the second includes the methods of analysis. Ibañez has endeavored to select from the various modern methods of assay the simplest and most readily performed in small laboratories. His chapters on water, vinegar, etc., are examples.

Of special interest is the chapter on wine. His intimate and first-hand knowledge of the subject can be readily appreciated in the discussions which are quite exhaustive, and the tests and assays are practical.

The reader will find the same intimate and interesting comprehension of the subject on the sections devoted to Spanish pimento and Spanish saffron. In this last subject, as in most topics in the book, the possibilities of adulteration of the Spanish product are considered in a very practical way.

Ibañez' book is an interesting, readable treatise on food analysis and is of great value to the Spanish pharmacist and to those interested in Spanish food products.—AMELIA MESA DE PONCE.

Bentley and Driver's Text-Book of Pharmaceutical Chemistry, second edition, revised by JOHN EDMUND DRIVER, Ph.D., M.Sc., A.I.C., Lecturer on Chemistry in the University

College of Nottingham, published by the Oxford University Press, London, 1933; XXV + 538 pages, 40 illustrations.

This well-known text, the first edition of which appeared in 1925, originally was written to meet the needs of those studying for the Pharmaceutical Society's Diplomas and for Degrees in Pharmacy. The book has been completely revised and largely rewritten so that the test now meets the requirements of those studying for any of the examinations in pharmaceutical chemistry of the Pharmaceutical Societies, Boards or Universities of the British Empire.

The subject matter is presented in three parts and an appendix. Part I, Analytical, 71 pages, is concerned with a general consideration of the methods by which the purity of pharmaceutical substances is determined. In this arrangement, such subjects as the use of physical instruments, the preparation and use of volumetric solutions, gravimetric and volumetric methods of analysis, indicators and the determination of p_H values are brought together and repetition is avoided. Part II, Inorganic, 144 pages, deals principally with the inorganic compounds used extensively in pharmacy and the metal salts of organic compounds are included in this section. A brief general account of the chemistry of each element is followed by a description of such of its derivatives as are defined in monographs of the British Pharmacopœia. In the monographs on individual substances, the impurities for which tests are described in the British Pharmacopœia are enumerated. Descriptions of the tests are given only in cases of special interest or where the reactions are obscure. Part III, Organic, 288 pages, gives a systematic account of organic chemistry, particular emphasis being laid upon substances of pharmaceutical importance. Explanatory descriptions of alkaloidal assay processes are also included in this part. The Appendix, 16 pages, includes tables for the identification of inorganic substances, notes on the identification of organic compounds, classified list of quantitative determinations, acid and alkali indicators and determinations in which they are used, periodic classification of the elements, and a table of atomic weights. Practical work including the preparation and purification of inorganic and organic compounds, qualitative tests and analytical determinations is given for many substances.

The text is based upon and is intended to be used in conjunction with the British Pharmacopœia. This fact limits the use of the book in our schools. The inclusion within the scope of a single volume of the subjects of inorganic, qualitative, organic and quantitative chemistry, while suited to the purposes for which the text is intended, further limit its use in this country where the tendency is toward texts restricted in scope to a single field of chemical work. The book will be found of value as a reference work, however, since most of the processes and substances considered are the same as or similar to those employed in the United States. In reviewing the book, one is impressed by the very great amount and variety of subject matter treated in a clear, concise and systematic manner in a volume of its size.—GLENN L. JENKINS.

Jungle Memories, by HENRY H. RUSBY. Whittlesey-McGraw-Hill, publishers. Price $3.50.

In his inimitable way, Dr. Rusby brings to light his experiences encountered in his expedition to Bolivia and Chile from 1885 to 1887. The account is of interest both to the layman as well as the scientist, since besides exciting incidents and vivid descriptions of the South American jungle, he has included scientific observations that only a man of his broad education could accurately record. As most scientists know, Dr. Rusby has contributed greatly to our knowledge of such important drugs as Quinine, Cocillana and Cocaine. The manner in which the latter drug is employed by the natives is fully described by him in this volume....

This book has both a cultural and scientific value for every one since it is rich in exciting incidents as well as botanical and anthropological data—and through it all runs a thread of the author's unfailing sense of humor. The book is dedicated to Pharmacists—perhaps because Dr. Rusby has been identified with an unrelenting struggle in behalf of pure drugs.

This publication records only a part of his adventures. Besides exploring the Amazon Valley twice, he has made expeditions to Arizona and New Mexico, has spent almost a year in the forests along the Orinoco, and has explored the headwaters of the Magdalena River while searching for new sources of Quinine in Columbia.—VICTOR LEWITUS, in *New York Journal of Pharmacy*.